THE

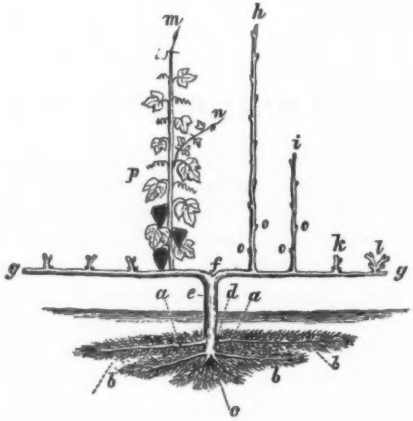
HORTICULTURIST.

VOL. XVII.....MARCH, 1862.....NO. CLXXXIX.

Hints on Grape Culture.—XIII.

IN the present article we shall finish our description of the vine, so far as may be necessary to understand the meaning of the leading technical terms hereafter to be used. The roots, trunk, etc., will be sufficiently understood from our last. Referring to the engraving, the reader will find at the top of the trunk, *d*, where it begins to divide, a point marked *f*; this is the *head* of the vine, in reference to which the terms "heading in," "heading down," etc., will be used. From the point *f* there are two branches proceeding horizontally right and left, called *arms*, which are marked *g*; more precisely, in reference to their direction, they are called *horizontal arms*. On the right arm is a long branch marked *h*; this is a *long cane* or rod, and the one next to it, marked *i*, is a *short cane*, the latter being from one to three feet long, and the former four, six, or more feet long, the adjectives in these cases being used in quite an arbitrary manner. At *o*, *o*, on these canes, are the *buds* or eyes, which are *single* or *double*, as there happens to be one or two. Farther along on the same arm, at *k*, is a *single spur*, and at *l* a *double spur*; they are called single or double, as they are intended to produce one or two fruiting branches; a *spur* is annual wood cut down to one, two, or three eyes, and is either a short spur or a long spur. On the left arm is a branch marked *m*, with foliage, etc. The small branch, *n*, proceeding from the axil of one of the leaves, is called a *lateral*; though only one is shown, a lateral usually proceeds from the axil of each leaf; and it is of these laterals or small side branches that so much is said about "pinching in." At *p*, on the same branch, is a small leafless twig called a *tendril*, which twines around any thing within its reach with great tena-

city, and thus forms a firm support for the vine. The tendril is always on the side opposite the leaf. A little lower down on the same branch the tendril is replaced by a bunch of fruit, which, like the tendril, is on the side opposite the leaf: they always alternate each other. We have known artists, oddly enough, to represent the fruit and the leaf as proceeding from the same side. The *leaf-stalk*, foot-stalk, petiole, etc., is the stem which unites the leaf to the branch. The shape of the leaf, the size and form of the bunch, the form and color of the fruit, and other matters of a similar kind, will form the subject of a distinct chapter at some future time.



[Engraving, showing the principal parts of the vine. It is drawn to a scale of a quarter of an inch to the foot.]

Disbudding is a term often used, but it is little understood by novices. It is simply to rub off or cut out a bud; for example, if you rub off or cut out the buds, *o*, *o*, *o*, on the cane *h*, you disbud it. *Pinching in* is an operation performed chiefly on the laterals, and constitutes the principal part of *summer pruning;* it consists of pinching off the ends of the young and tender branches with the thumb and forefinger; if the operation is delayed too long, the knife will have to take the place of the thumb and finger, unless these appendages in the reader's case happen

to be much tougher than ours. *Dormant buds* or eyes are such as have not been developed into branches; these are always abundant on the vine, especially on the old wood, and it would hardly be possible to cut an old vine down to within even a foot of the ground without developing a number of them. Nature is bountiful to the vine in this respect. *Stopping* is sometimes used synonymously with "pinching in;" but we shall confine its use to the removal of the ends of the principal growing branches; thus we shall *stop* a branch and *pinch in* a lateral. *Bleeding* is a word used to denote the flow of sap caused by pruning late in spring.

We believe we have now explained most of the terms necessary to an understanding of the processes of pruning and training; there are others which can very well be explained as the subject proceeds. Those we have given, however, are indispensable to the beginner, and he should learn them thoroughly if he would make grape-culture a pleasant and easy study.

In conclusion, it may be well to recapitulate the parts of the vine indicated by the engraving: *a*, *primary roots*; *b*, *secondary roots*; *c*, the *base* of the vine; *d*, the *neck*; *e*, the *trunk*; *f*, the *head*; *g*, *g*, the *arms*; *h*, a *long* cane; *i*, a *short* cane; *k*, a *single spur*; *l*, a *double spur*; *m*, a growing cane furnished with foliage, etc.; *n*, a *lateral*; *o*, *o*, *buds*; *p*, a *tendril*. Among other important terms to be remembered are, *fruit wood*, *annual wood*, *biennial wood*, *disbudding*, *pinching in*, *stopping*, etc.

LANDSCAPE ADORNMENT.—No. XXI. "PLANTATION."

BY GEO. E. WOODWARD,

Civil and Landscape Engineer, 37 Park Row, New York.

The embellishment of ground may be very properly considered under two heads, one of which relates to its money value, and the other to its beauty and enjoyment; and as, in the progress of taste in all matters belonging to country life, the beautiful has necessarily become an essential part of the value of real property, it would appear to be good policy to do something that shall enhance the prospective value of lands seeking a market.

Landed property remote from large cities and villages seldom acquires a fancy value; yet we know that its attractiveness or chances of sale are increased many fold if fine trees and shrubbery have been judiciously preserved or planted, and home surroundings and comforts been cared for. The argument used among some of the practical cultivators of the soil, that the land is of more value for other purposes, is about the most frivolous that could have been suggested, as there is more money in an ornamental tree at any period of its existence, than there is in the most remunerating farm crop that could be grown on the ground

it would occupy, and the proper labor attendant on one is not more than required by the other.

It is only necessary to compare the handsomely-wooded accessories of the farm house or country residence with the bare, unsheltered dwelling, exposed to wintry blasts and summer suns, to note the difference; a difference for which neither economy nor utility can afford a reason.

The greatest charms of landscape beauty are wholly dependent on trees and shrubbery; without them fine moulded surfaces and highly finished roadways become tiresome. The variety of form and color, the division of ground and vistas, the ability to conceal defects and develop beauties, are all due to the attractive and variable qualities of wood.

With the constantly increasing love of rural life, and the universal good taste that characterizes those who seek it for the health and enjoyment it affords, it would seem like presuming upon a good deal of patience and a want of appreciation, to offer for sale for a home, land that is barren of trees; yet we know that real estate, destitute of all the available values that handsome wood attaches to it, is held year after year at the same price as that which possesses the needful attraction. The sale of a single piece of property at a good price, has heretofore had the result of bringing up the values of all in the neighborhood to about the same figures, without considering that they are actually destitute of the primary wants of a tasteful purchaser; and it is only when such property has been in market for years, that the discovery is made that high prices are not entirely dependent upon convenient and rapid access to town.

The retired merchant or business man, who seeks repose in a country home and its attendant pleasures, naturally prefers to purchase property not wholly destitute of wood, as, no matter how many examples may be quoted, it is no easy matter to convince one advanced in life that he may hope to plant fine trees, witness their development, and enjoy their beauty and protection. However much one might wish to accomplish this, it is nevertheless a true and judicious policy to pay an over liberal price for that which either nature or art has to some extent shaped and clothed to one's liking. It is an undertaking of considerable importance to one past middle life, to start and construct a fine country seat from the treeless farm; it is productive of too much hard work and annoyance to be sought after; and to those who know, it is actually a matter of economy to pay a round price for a place that has at least advanced into the first period of its existence. We speak now of that class of improvements which are to a very great extent dependent on time to develop their beauties. The construction of buildings and roads, the necessary graduation of ground, etc., can be easily accomplished in a year or two; but to successfully embellish a place with wood must necessarily be a work of time; one, however, quite proper and agreeable to those who do not undertake it when on the down-hill side of life. Planting for immediate effect in this climate, must be at the expense of future effect; removal of

large trees is an uncertain matter, except by the most skillful hands; and even then it requires time to wear off those indications which to an experienced eye tells the story of their removal.

Within the railroad influence of large cities, accessible by the business class, fine and attractive sites command a liberal price; yet there must be a strong inducement in the way of location, views, etc., to work off a naked site at the ruling rates. It is a fact that a moderate amount of desirable wood characterizes those first taken. To any one who is credulous regarding the value of ornamental trees, and the rate of interest they pay, let him advise with the owner of a naked but otherwise desirable location, that has been on the market for a series of years, and he will get an admission of value that perhaps will startle him. "A couple of hundred dollars judiciously expended, ten years ago, in ornamental trees, would have enabled me to sell this place readily, and at a price that would have covered more than a hundred fold the cost, labor, and interest on them." For it must always be considered that attractiveness is essential to a purchaser willing to pay a fancy price; *you must catch his eye.* This is thoroughly understood in every other business, particularly so by every merchant and manufacturer, and its application to real property is of even more value.

Ornamental planting in its early stages, if properly managed, is not an expensive matter, and may be looked upon as an investment that will pay as good a rate of interest as money securely put out in any other form. We might almost say that it will pay a fair interest upon the reasonable value of the whole property, and in many instances we might name this would be no extravagant assertion.

There can not be devised in this appreciative age a more certain form of making real estate desirable, than by beautifying it with ornamental wood. Properly managed, the moment the planting is finished, a value has been added to it that many times exceeds the cost of the trees and labor; and as each succeeding year adds to their size and beauty, there is a fund accumulating that fully compensates for any anxiety or anticipated loss, when obliged to hold property over periods of depreciation.

If those who hold real estate for a market would take into consideration these facts, they would find them productive of valuable practical results. The purchase and planting of small trees is not an expensive matter, and our numerous and well-known nurseries afford the greatest choice at prices less than they could be taken from their native localities. Indeed, a gentleman who is an acknowledged authority on all matters relating to landscape art, has stated that he can import evergreens from England at less cost than he can obtain them from the neighboring hills, when the time spent in selecting specimens, the labor of their removal, and the chances that they will live and do well, are taken into consideration.

PROTECTING THE BIRDS.

BY BROOKLYN.

Do you not think this matter comes within the jurisdiction of Societies? I send you our local paper, with some remarks called forth by a proposition brought forward in the Common Council to import English Sparrows to destroy the inch-worms. That our birds are rapidly decreasing in number, especially in the vicinity of towns, is a lamentable fact; and as a necessary consequence, the insects increase.

The greatest destroyers of birds I take to be children, their parents often, through thoughtlessness or ignorance, encouraging them in it. Should think the best means to overcome this would be to widely disseminate the knowledge of their usefulness; teach the children to respect the nests, eggs, and the birds themselves. If this were done, they would soon take as much pleasure in encouraging as they now do in destroying them. A ready mode of spreading this knowledge would be through the public and other schools; interesting illustrated reading books upon the subject would be good.

Many grown people require educating upon this point as well as the children; they would be very apt to learn from them. Laws upon the subject should be passed and—there's the rub—*enforced;* but a proper public sentiment will do more.

I suppose it may be stated that all our birds, except those of prey, are useful in destroying insects; even that much derided individual, the Crow, probably does more good than harm; he and the Robin and Cat Bird are annoying at times, but should judge it better policy to limit their depredations by scaring, rather than destroying them. The grain and fruit they take are, probably, but small wages for the service they perform.

In connection, how few have any respect or feeling for toads, or know how valuable they are to the gardener.

Apropos of insects. One of the most effectual modes of combating them is, now, at this slack season, to go round with an old knife, and grope in the cracks of fences, trees, outbuildings, etc. The quantity that can be found is astonishing; and every one destroyed now, prevents the hatching of hundreds or thousands of the feeding ones next summer. The common directions for dusting with ashes, lime, etc., is to do it when the dew is on; it then sticks to the leaves, and makes the plants look unsightly, if it does not seriously injure, by choking them. I, therefore, have adopted doing it on a still day, when the foliage is dry. The bodies of the insects against which this means is effectual (Pear Slug, for instance) are viscid, and the dust will stick to them only, which is what is wanted.

Picking off is the only remedy against many. To those who object to fingering them, I would suggest the use of a pair of light spring-steel nippers, set to open

about half an inch at the points. A slight squeeze will settle them; or they may be dropped into a cup containing a little common oil. A small, spring-bottom can of oil is a good weapon against the hairy caterpillars sometimes so numerous. Two or three drops squirted on them effectually disposes of them.

It is recommended to hang wide-mouthed bottles, half filled with sweetened water, among fruits attacked by wasps and flies. Tried and abandoned it, thinking it attracted them in greater numbers, and the fruit suffered more than it would have done had they not been there.

Think the value of the carnivorous beetle (chiefly represented here by the well-known Lady Bird, invaluable, both in the grub and perfect state, as the enemy of Plant Lice and Squash Bugs) is not sufficiently known.

The Humble Bee should be respected. *Vide* Darwin, who states it is the only insect that can impregnate Red Clover.

Ants—Are they not useful, if sometimes annoying? As the attendant upon the Aphis, may they not prevent them damaging the plants as much as they would if their excretions were not removed? Do they not act as impregnators in closed houses to which bees have not access? I thought they did me good service in a Cucumber frame this spring.

Earth Worms—Do they really do any damage? Are they not consequent and attendant upon disease, rather than the cause thereof? They are made a great bugbear in many books, and much stress is laid upon how to avoid them: "Place broken crocks at the bottom of the pots; stand them upon a layer of cinders, shells, etc., to avoid earth worms." To avoid stagnant moisture, I think, would have been more correct.

In the open ground, should think the presence of worms in large numbers proof positive of defective drainage; and if plants were diseased, as would most likely be the case, should lay it to that, and not to the worms.

[We are obliged to you for the article and accompanying papers. The subject is entirely within our jurisdiction. The resolution now before the Common Council of Brooklyn, appropriating $500 for the importation of English Sparrows, ought not to be entertained. Such an appropriation, in our opinion, would be a useless waste of money. We have insectiverous birds enough of our own, and some quite as fond of the home of man, and as easily domesticated, as the English Sparrow; but, like the dove that went out from the ark, they can find no place of rest in our cities; even the house Swallow soon disappears. Aside from other causes which combine to produce this result, we can look for nothing else so long as stoning and shooting innocent birds, and stealing fruits, are not regarded as crimes to be reprobated and punished. Birds would, beyond all peradventure, keep down this insect pest, but it is certain that we can not have the birds, and we must resort to other means, and these means are within the reach of the Common Council of Brooklyn, if they are in earnest in this matter, without resorting to the vandalism of cutting down the beautiful trees which adorn the city, as proposed

by some of the members. We can not help losing our patience at a proposition of this kind. "Brooklyn" suggests that we "now, at this slack season, go round with a knife, and grope in the cracks of fences, trees, outbuildings, etc." This is good advice; but our city fathers need be under little necessity for groping, (provided they are *not* "all right,") for millions of nests may be plainly seen on the trees all over the city. Those $500 may be much more wisely spent at home, especially during these times of distress. Some of our readers will be amused at the idea of catching caterpillars with nippers and a drop or two of oil; we do not believe they will survive either when vigorously applied. We think Mr. Darwin is altogether mistaken in supposing that the Humble Bee is the only insect that can impregnate Red Clover; but this fact will not detract from any usefulness that may pertain to the Humble Bee. The Lady Bird we regard as a friend, but do not feel sure about the ants. So, too, we regard earth worms as very useful friends, but we prefer that they should not get in our pots; when they do, we are certain to give them a dose of lime water to drive them out. We do not think their destruction in the open ground at all desirable.—Ed.]

AN HOUR IN THE VINEYARD.

BY JNO. S. REID.

'Tis winter, and the snow lies cold and white on the leafless vines. Not a single grape is found in all the vineyard, and the snow-birds chirp mournfully among the waving canes. The vital principle appears dead or dormant, and the bud, enwrapped in its waxen sheet, shows to the unpracticed eye no sign of life. Yet, but a few months will revolve, and vernal winds will fan the dry branches of the vineyard, and the life-giving principle will arise and fill the fibres of the vine; the bud will burst its cerements, and the young leaf will spread its green folds to the sun, and the dew and the summer's rain will cause it to bloom and blossom, until the tender clusters become full of the melting, invigorating juice, which cheereth the heart of God and man.

How beautifully prophetic is the emblematic vine of the destiny of man. Death comes with his snowy mantle, and enwraps us in his cold embraces; the grave entombs us from the eye of friendship, and a deep silence reigns all around. But soon, ah, soon, the voice of spring is heard among the dry bones, and the vital forces resume their action; bone flies to its fellow, and the brain, warmed into life, awakes the heart from its long sleep, and sends the vital current through every artery and every vein. The eye assumes its light, and the cheek its roseate covering, and life immortal invites the once lonely sleeper to its pure abode. No one can follow horticulture for any length of time, without feeling how wholly dependent he is to some superior Power, no matter what his teachings heretofore may have been; for as soon as he becomes the student of this

beautiful science, the beauties of nature attend his steps and surround him on every side, so that he naturally leans to the side of virtue, and becomes a purer and better man.

But I am moralizing instead of naturalizing, as many of your readers will say; hence, for the present, I will throw aside the mantle of the moralist, and talk with nature in one of her stormiest moods.

January 16, 1862. On surveying the vineyard, I found the snow covering the frozen ground for some inches; the thermometer had fallen to 6° under zero, and the weather in general was uncomfortably cold. Several of the grape-vines broke brittle as a pipe-stem: the tips of the canes of the Catawba, Union Village, Anna, Clara, El Passo, and Bland, were all injured. My Delawares were younger than the above-named grape-vines, and showed signs even worse than them. The Concord, Hartford Prolific, and White Fox, all looked hale and hearty. Icicles hung as mock diamonds from the frozen branches of the Peach, Plum, Cherry, and Apple; every thing seemed to wear the appearance of sadness; so that, feeling rather uncomfortable myself, I left the vineyard, and sought refuge and recreation in the wine-cellar.

From my former article you will perceive that I am not a professional vintner, only growing my own grape-vine, and making my own wine; and as you appear to have got into the channel of the Rhine, and seem anxious to know how wine is made from the pure juice of the grape, I for one will add my mite to the general stock of information, and perhaps may afford some benefit to those who are as ignorant as myself.

The best wine grape which we have in the West for general purposes, is the Catawba, although it is said that the Delaware yields a *finer* wine. The grape ought to be thoroughly ripe before pulling; not *dead* ripe, as some would call it, otherwise it loses much of its vinous spirit, and does not yield in quantity so much as when pulled at the proper time. The press used by me is a portable cider press, one which contains about two bushels of grapes; and in pressing, such power is used as will force a juice having a density and sweetness of not less than 75° in the wine scale. This weight of *must* will yield about 7½ per cent. of alcohol, and with less than this the wine will not keep. In pressing, the juice is strained through a wire sieve or fine small basket, to keep back skins, bruised grapes, etc., yet allowing enough of the albumen and mucilage to pass into the barrel. The barrel should not be less than 40 gallons, and over this, up to 1,000 gallons, the better.

The *must*, when ready for fermenting, should be taken into a warm cellar, not less than 60° Fahr., and fermented under water; by this I mean, that a siphon should be run into the bung-hole, large enough at one end to close the hole, while the other end is plunged into a cup of water, so that during the process of fermentation the aroma will be retained, and nothing but the gas be allowed to escape. This process occupies from ten to twenty days, according to the richness

of the *must;* and the practiced ear will know when to stop the fermentation, by listening to the modulations of the action of the wine. It is then filled up, bung full, with other wine, and allowed to stand on the lees until spring, when it is racked off, and placed away in a cool cellar for maturing and fining all of its impurities. Wine, until it is one year old, ought not to be bottled, but frequently racked during the first and second year.

At the end of the first year, if the *must* has been good, and the manipulations well attended to, the wine is fit for use; but it will taste rough on the tongue, and somewhat sour to the palate; hence many pronounce *pure* wine no better than hard cider. A chemical analysis of pure wine places tartaric acid, grape sugar, and water, as the ingredient component parts; and the more of this acid, with an excess of sugar, makes the richer and better wine, the sugar overcoming the acidity of the tartar. Some grapes, instead of having an excess of tartaric acid, have almost none, and their excess is either citric or malic acid; hence the wine is sour, and will not mature or keep. The Isabella, Concord, and some of the wild grapes, contain citric acid instead of tartaric, while the apple and some other fruits have the malic acid in excess; consequently hard cider is the result. In bottling, I never bottle under one year old, and then I cork and seal, and lay away in sand in a temperate cellar of about 50°, placing the bottles on their sides. When the wine is fully ripe and ready for use, I need not inform you how to drink it, although there is more art in this than in all the rest.

Perhaps you may remember of the wager, once laid in Paris, as to the proper mode and manner of drinking wine, and how it was decided. If you do not, believing you to be a scholar and a gentleman, I refer you to the *litterati* of that famous city, and to the Grand Monarch, who now wields the sceptre of France. So much for wine!

In my next communication, I will give you a synopsis of the mode and manner of making composite wine in the West. By composite wine I mean, that which is not *pure*, but such as is made from grapes not fully ripe, where either sugar or brandy is necessary, to give it strength, in order to keep. In the meantime, let me say, that cleanliness is an all-important adjunct in wine-making. The press, funnels, barrels, every thing should be clean. The cellar pure in air, and cooling in its nature. The casks, fumigated with sulphur matches, and sweetened with juniper berries; and the must drawn off in the spring, when the weather is mild, clear, and dry. For every bushel of ripe Catawba grapes the yield in must should not be less than three gallons; and for every gallon of must there should be a return of 90 per cent. of pure wine. Every acre of grapes, when in full bearing, should yield 250 gallons of must; if more than this, the wine is deficient in strength and quality, and an injury to the next year's crop.

Although a mere amateur in the culture of the grape, and far from being an expert in the manufacture of wine, my neighbors think that my wine is hard to beat; and as a sample of some I now have on hand, in order that you may test

its quality, I send you by express two bottles, one of my red-cork, and one of my green, so that you may report on them at some of your horticultural *conversazione*, when you and your friends meet.

[We are very glad of the pleasure of spending another "Hour in the Vineyard" with you, and trust the pleasure may be oft-repeated. Your mode of making wine is a good one, and is explained in such a plain, practical manner as to make it of much value to our readers. Such directions, faithfully carried out, will result in the production of a good *pure*, wine, and we very much doubt the propriety of making any other. The two bottles were received, for which we thank you. We hope we shall not disappoint you in pronouncing the "*green* cork" below the mark. The "*red* cork" is the nearest approach to Mr. Mottier's wine of any that we have received, and that is the highest compliment we can pay it. If it is ever our good fortune to come and see you, we hope you will have in the cellar a good supply of the "red."—Ed.]

LIQUID GRAFTING WAX.

BY HORTICOLA.

Mr. L'Homme-Lefort (or, as others spell the name, *Lhomme-Lefort*) invented, not many years ago, a grafting composition, which, when generally known, will, no doubt, supersede all others now in use, either for grafting purposes or for covering wounds of trees. It is very cheap, very easily prepared, and keeps, corked up in a bottle with a tolerably wide mouth, at least six months unaltered. It is laid on in as thin a coat as possible by means of a flat piece of wood. Within a few days it will be as hard as a stone. In addition to all the advantages indicated above, it is not in the least affected by the hot sun of our summers, nor by the severe cold of our winters; it never softens nor cracks when exposed to atmospheric action or changes. A single instance which came under my own observation, will suffice to show this clearly. In April last the bark of a double-flowering peach tree had been destroyed by some goats several days before I noticed the mischief. There was hardly a place as far up as the goats had been able to reach, where any bark was left; the few remaining particles were in no connection whatever; the wounds were rough, and had already turned brown by an exposure so long continued. Although I despaired of the possibility of saving the tree, yet I determined to try it by an application of the fluid grafting wax of L'Homme-Lefort, which I had just purchased for the first time.

The result is surprising. The tree is as vigorous as ever, the wounds having healed over under the cover of the hardened grafting wax, which, after the lapse of so many months, sticks as firmly to the tree as if laid on a few days ago.

As long as the inventor kept the preparation secret, it was sold at very high prices. Even now it is unknown to many; I feel, therefore, induced to give the recipe, as follows:

Melt one pound of common rosin over a gentle fire. Add to it an ounce of beef tallow, and stir it well. Take it from the fire, let it cool down a little, and then mix with it a table spoonful of spirits of turpentine, and after that about seven ounces of very strong alcohol, (95 per cent.,) to be had at any druggist's store. The alcohol cools it down so rapidly that it will be necessary to put it again on the fire, stirring it constantly. Still the utmost care must be exercised to prevent the alcohol from getting inflamed. To avoid it, the best way is to remove the vessel from the fire when the lump that may have been formed, commences melting again. This must be continued till the whole is a homogeneous mass similar to honey.

After a few days' exposure to the atmosphere in a thin coat, it assumes a whitish color, and becomes as hard as stone, being impervious to water and air.

[A good liquid grafting wax has long been a desideratum. We have seen the above as used by "Horticola," and are much pleased with it. It is better than the shellac preparation, and is much cheaper. It is an admirable preparation for covering wounds in trees.—Ed.]

BIGNONIA VENUSTA—BUT WE WON'T TELL.

BY FOX MEADOW.

Just as I received the last month's Horticulturist, Mr. Editor, I was about sending you a "secret" or two, concerning that most lovely—not *new*, but *old* Bignonia. Not for any particular benefit to be derived from such information by the "gardeners," but for that class of men known as the "Brooklyns," who, when they go into a confectioner's shop and buy a plum cake, come out rather "miffed" if they can not get the secret of its compounds given to "boot" with the pittance paid for their cake. Well, sir, I thought the remarks of your correspondent very unjust, when he lays the whole of his grievances flatly on the shoulders of that most honorable body to which your most humble servant is proud to belong; for we think that of all men, and of all trades or professions, there are none in existence, more cheerful and willing to give to the world all they know, and without reserve, than that class of men called gardeners. There is no paper, magazine, or periodical of any description, published either in America or Europe, that gets half the support of practical experience that is subscribed to Horticulture. We believe that gardeners are the most *social* of all the men in the world, and that there is nothing that they have just discovered that they are not eager to divulge. It is true, that some of our amateur friends, who ask a question or two, and are

delicate in asking about some simple little things as details, which they think they can get along without, spoil the whole in consequence. A female acquaintance of ours, who is considered very famous for making English plum pudding, was asked one day at the dinner-table, by another lady friend, "how she made the 'pudding' to look and taste so very delicious?" Why, she replied, by putting together so much of such ingredients as she then named. Her friend seemed much pleased with the idea of getting at the secret of this pudding making, and said that when at home to-morrow, she would make one like it. She did make it, and brought part of it to be tasted by our lady friend who gave her the receipt. But, good gracious! what do you think, sir? In the place of using *milk* to mix it up with, as she was directed—to make it look brown, as she thought, she used common black molasses, and consequently it was nearly the color of the pot in which it was boiled, and smelt—oh! like an old rum keg. "You don't like my pudding, do you? I made it just as you told me, *only* I used molasses, because I thought it would answer the purpose of milk and sugar." That lady went home quite in a "miff," Mr. Editor, and told all her neighbors that Mrs. A. had some "craft mysteries" about the pudding making, and that if she had only told her the consequences of the use of the black molasses in the place of milk and sugar, a great many more puddings would be eaten than there are now, and that, consequently, much more flour and fruit, as well as suet and milk would be sold by the trade. Indeed, Mrs. A. was much behind the age, and in need of enlightenment. "Brooklyn," wherever you are, whether in America or Europe, *write your questions to the Editors of Horticultural papers;* and let them be as simple as they possibly can be; *some* of the readers of such journals will be benefited by it, through the answers given in reply. The cost by this means is only about three cents, and then the "Brooklyns" will at all times be independent of those men who pertain to "craft mysteries," and at the same time yield a valuable support to our Horticultural literature.

Now, Mr. Editor, I had almost forgotten to tell you about that Bignonia; but what I am going to say, you need not tell those "Brooklyns," unless they offer some apology for the nice character they have given the gardeners as a *whole body.* If this suggestion is complied with, which we think the justice of the case demands, you are at liberty to hand over a little more of the "craft mysteries." It would be useless, Mr. Editor, for me to ask you if you knew such a plant as *Bignonia venusta;* but there is one thing about it, *perhaps*, that you don't know, and which I will tell you just now. Sometimes this beautiful creeper, when growing in the border or a large tub in the conservatory, will flower very profusely, and sometimes scarcely at all. We have seen immense plants spreading nearly over the whole of the glass roof of the house in which it was growing, with but a few of its handsome panicles to charm the hearts of those who delight in the beauties of flowers. Ah, sir, much depends on how things are grown to be able to properly appreciate their true value; and we are often very liable to throw old things

overboard, not because they are not good, but because they are *old.* It was only the other day that a "crack" plant grower walked into a house we know of, and as soon as he entered the door he stood bewildered, when at last he stammered out, "Good heaven! what is that over there!" and away he rushed to it like a madman. We thought he was going to devour the plant, or run off home with it; but as soon as he got right at the plant, "Pshaw!" said he, "*old* Linum tigrinum!" It was an oldish plant taken up in the fall and potted, about 3 feet in diameter, and as full of its beautiful little yellow trumpets as it could hold; so our friend was taken in for once. Very beautiful, till he found out what it was.

To flower this variety of the Bignonia *in a pot* is what we wish to tell you, which is not commonly done, or not done at all this way, except by the individual who is now going to give a little more of "craft mysteries." *Modus operandi.* Put a young plant early in the spring into a good sized pot, rich compost, such as would grow a good grape vine. In May, put it outside; if the plant has two or three shoots, cut them back to 3 or 4 inches. This will be the means of producing more shoots. Train in straight lines along some fence or trellis, and enable the plant to grow as rapidly as possible by giving plenty of water. Plunge the pot in the ground up to the rim, but put a slate at the bottom to prevent the roots getting into the ground. Tie, and train the creeper as it grows. In the fall, when the time comes that all such plants should go into the house, up with this one; put some stakes into the pot, and twist the shoots around the sticks, tying them on carefully. This ends the work. Such plants *in pots* will flower most beautifully. The next season, *cut back* the previous summer's growth to within one eye or bud of where it started from, and perform the operations of the first season, as described. In this way the Bignonia venusta will flower in pots as freely as Pelargoniums. The ends of the young shoots should never be nipped or cut back, as the largest panicles of flowers are produced there. The plants grown or planted out in the borders in glass structures, should have their annual wood pruned back as soon as the plants are out of flower, just in the same way as gardeners spur prune grape vines. Cut off all the young growth every year as soon as flowering is over; and if the sash can be taken off the house where such plants are growing, so much the better. It propagates freely by layers, and will strike from cuttings of very young wood in a brisk bottom heat, covered with a bell glass. The plants when growing in pots will take strong doses of liquid manure, which will enhance and strengthen their growth. Now, Mr. Editor, we have already trespassed too much on your valuable space, so WE WON'T TELL ANY MORE.

[We will finish that last sentence for you by adding the words, "this time," and then it will be just like you; for of course you will tell *us* more; but we will not tell "Brooklyn" a word of it, unless he puts in a "bill of exceptions," and vindicates the honor of a profession of which you are one of the brightest ornaments. We will just tell you, *sub rosa*, that we shan't believe a word about that

plum pudding till your lady friend sends us a piece of it. Our amateur readers, and a good many others, will thank Fox Meadow for telling them how to bloom the beautiful Bignonia venusta in pots. It is sometimes an intractable plant, even in the hands of good growers; but this simple method of growing it in pots ought to make its cultivation much more general, as it will certainly make it much easier. Fox Meadow's "secrets" are always worth knowing.—Ed.]

THE LOGAN NURSERY AND ITS EVERGREENS.

BY DR. G. P. NORRIS, WILMINGTON, DEL.

A short walk from the Nicetown cars brought us to the well-kept grounds of Wm. Bright, Esq. During the past year the improvements have been numerous and extensive; it would take considerable more than civil war to dampen the enthusiasm of its energetic head. Among the new things seen on this occasion were two span-roofed graperies; one about 70 by 24, the other 200 by 14, all finished in the best style, and to be heated with hot water. The houses are, of course, destined to be worked entirely on the inside border system; and whatever may be its advantages or disadvantages, it is always pleasing to find a man practicing what he preaches. Mr. Bright believes that inside borders, made as he describes, will accomplish all that he claims for them; and the best test of his faith is the considerable sum he has invested in the experiment. It is a pleasant place to visit: one always comes away brighter; and if one does not gain information, it must be his own fault, and not that of the proprietor, who is not only ready, but eager to impart information on all subjects pertaining to his line of business.

In an adjoining house, also span-roofed, growing in the inside border, all the new grapes may be seen. Of the Trentham Black Mr. Bright has not a very great opinion; it is a large berry, dark purple color, (when we saw them they were not fully colored,) but thinks it will prove an indifferent keeper. Quite a different opinion has Mr. Bright from Mr. Fox Meadow, as I found by his reply to my interrogatory in the January *Gardeners' Monthly*, respecting the merits of the Barbarossa. He thinks the Barbarossa will not well bear the restraints of the inside border as well as some of the others. High in his estimation stand the Buckland Sweetwater and the Bowood Muscat. Bidwell's Seedling and Ingraham's Hardy Prolific Muscat are now on their way across the stormy ocean, imported at a heavy outlay expressly for Mr. Bright.

The new graperies to which we have alluded, are all finished in the best style, painted, and glazed with the best glass. The trellis in these houses is original with the proprietor. We would attempt a description, but understand that a full description, with drawings, will shortly appear in a new edition of the Grape

book. The success of this book shows Mr. Bright's efforts are not unappreciated by the horticultural community; the fact of the book having run through two editions and a third demanded in so short a time, speaks well for its merits. Mr. Bright's pot vines are worth looking at; their culture is here made a specialty, and as much care taken of them as a man would of his children. At this season they are at rest, and carefully tucked away in a very dry cellar, with light and air admitted in fair, favorable weather; they repose quietly until the warm April days, unless sooner demanded for the forcing-pit. Many varieties are cultivated for fruiting, but the principal demand is for Hamburghs and Muscats, with some inquiry for the Frontignan family, and sometimes the late grapes. We were also shown the new vineries built for Mr. Drake and Dr. Moore of Germantown; they are both lean-to houses, with inside detached borders. They are both costly, but for Mr. Drake's grounds we would have preferred seeing something more ornamental—more in unison with the costly character of the dwelling; however, that may very well come hereafter, when the present building may be well used for an early forcing house. A handsome curvilinear-roofed vinery would embellish the grounds around Mr. Drake's dwelling; and when expense is no object, and very early grapes not sought, this style of building would be particularly appropriate. The other vinery above alluded to has many advantages in point of position, being at the end of the garden, and well protected by a hill. It will make a capital forcing house. A large and ornamental cistern is placed directly in front, thereby insuring an ample supply of soft water.

Mr. Bright's grounds embrace about three acres, and are most judiciously laid out. Here are to be seen some of the finest grown nursery specimens that it has been our good fortune to meet with. Selecting naturally vigorous trees, they have been carefully transplanted when young, and their development allowed without check; at the same time, care has been taken to avoid excessive artificial stimulus. The soil seems naturally well adapted to the growth of the hardy evergreens, and skillful planting has so protected the half hardy by those whose character was before known, that all alike look thrifty and vigorous. The system of pruning adopted at this nursery has much to do with the production of the fine specimens. Many labor under the impression that to use the knife on an evergreen is to ruin it; and the recalling of some Balms of Gilead with some six feet of their lower branches entirely cut off, leaving about four of the top with their grace and beauty for ever gone, forcibly impresses me, that those who have not given the matter some attention had better leave the knife alone. No tree should be pruned unless growing vigorously; I am speaking now, be it remembered, of evergreens, and of pruning with reference to the producing of a fine form. April or May is the proper season for the knife; and with the Norways, if their leader be entirely removed, and a lower shoot tied up for a new leader, the vigor of the tree is thrown into its lower branches, and a beautiful pyramidal form thereby produced. Not only on the Norway, but also on the white pine is

the knife used; and with what a very happy effect, one has only to visit the Logan nursery to observe. Very beautiful, compact Siberian Arbor Vitæ are also interspersed among the others, with a great variety of the newer and less known kinds. The trees are usually removed in the spring, and with much care, something of a ball being taken with each; they are then set in their new homes very shallowly, and carefully mulched. They usually receive a little looking after, after leaving the nursery; and that the time spent attending them is profitably employed, many of the well-kept front gardens of Talhehocken street, Germantown, will attest. Mr. Bright points with just pride to the many well-grown and handsome specimen trees there placed under his directions and superintendence; and it is certainly much more satisfactory for the future owner of the tree to pay ten dollars for a well-grown, pruned tree, carefully transplanted and guaranteed to grow, than to pay ten cents for the miserable rubbish that one sometimes sees encumbering the grounds of what would otherwise be handsome homes. Not that I mean to say that Mr. Bright charges ten dollars for his trees, for I never bought a tree of him; but that his trees would be cheaper at high prices than the stunted trash for nothing.

In connection with this subject, I can not help alluding to the impositions practiced by designing nurserymen on the ignorant public; unfortunately to the many, a tree is a tree, and if it have some branches and no roots, why no matter, it is a tree. I have seen on a cold windy March morning—of all times in the year the most unpropitious for the removal of the evergreen family—cart loads of these so-called trees "auctioned" off. Many, it is true, although of some size, brought but the ten cents; but they were very dear even at that price. Farmers, horticultural novices, and others buy these rootless trees, take them home, and devote as much time to planting as they would to a fine tree, then wonder they don't grow, why they have no luck with their trees. Many well-intentioned persons are thereby discouraged, and resolve to never again make such a profitless investment, and horticultural progress is thereby much retarded. Now would the advice reach the ears of those for whom it is intended, (but, unfortunately, it won't,) we would say, go to reliable nurserymen; pay a fair price; trees can't be grown for nothing; move them late in the spring, after the cold March winds are over; see the trees removed yourself, and if a few very fine ones only are desired, take up part of a ball with them; prepare the ground for their reception carefully; give the holes at least double the circumference that you have seen for a tree; then, not going to the subsoil, place the tree with the ball slightly elevated above the surface of the ground; keep the ground around stirred and mulched, during the hot months, and take my word for it, you will not see your tree languish or die. If only a few strong, quick-growing evergreens are wanted, and especially if the soil be poor, select the Austrian or Scotch Pines. Our evergreeens are more injured by the raw winds than by the intense cold, but the two varieties of pines above mentioned will defy any weather, and will grow on the most exposed situ-

ations. Everybody knows that the Norway Fir is perfectly hardy, and improves with age, in this respect contrasting very favorably with the Balsam Fir, which unfortunately often looks shabby with age. The European Silver Fir is another whose hardiness is undoubted; it is a slow grower when young, but after becoming established, oftentimes grows into one of the noblest of trees. The Hemlock although succeeding better in moist soils, grows well on the banks of the Hudson. The Red Cedar, although not often offered by the nurseryman, and of very slow growth, is able to stand any winter; it unfortunately browns at the time when we most desire to see it green. In enumerating, the Arbor Vitæ must not be overlooked, and we think by all odds the Siberian has most claims to attention; of the Golden, the less said the better. The Cedar of Lebanon, to those who desire more of a collection, is thought to be the finest evergreen of Europe.

[We have already expressed our approbation of the neatness of Mr. Bright's well-kept nursery. What is the matter with you and the Golden Arbor Vitæ, Doctor?—Ed.]

HOW THE ROMANS GRAFTED THE GRAPE VINE.

BY HORTICOLA.

Many years ago, being disgusted with my inability to decide for myself in regard to the relative worth of certain Greek and Roman classics without having read them, I concluded to follow the example of the great Dutch philologists, such as *Scaliger*, *Hemsterhuis*, *Ruhnken*, and others, in reading through all the Greek and Roman authors, from Homer down to about 500 years after Christ, in a chronological order. As a philologist and professor of classical literature, I was very familiar with a large number of them. I spoke and wrote Latin with the greatest facility, and had made and published Greek and Latin poems. In order to carry out my intention, I gave up reading, except the classics, and so I accomplished my object in the course of three years. The readers of the Horticulturist will not misunderstand me; I do not mean that I *studied* all the classics in so short a time, I only *read every one of them through in the original.* By this I was enabled to judge for myself in the conflicting opinions concerning certain classics. I know now what to think of *Julius Cæsar Scaliger*, (not his son *Joseph*, professor in *Leyden*,) who says in his celebrated book *Poëtica*, that the elegant Virgil was as much superior to the natural Homer as a beautifully dressed lady is superior in appearance to a rustic cattle-maid. I know now what to think of Philip Melanchthon, who pronounces Cicero's book De Officiis the best book in existence, after the Bible; and of Henry Stephens, who declares that it is the most tedious and tiresome work ever written. The standard by which a reader judges of a book, is *his individual taste, his general culture, the richness and depth of his mind;* it is true that

Pro capta lectoris habent sua fata libelli.

At the time that I was reading the classics, I was very much interested in the cultivation of exotic plants, especially Cacti, of which I had *then* the largest collection on the European continent. This induced me to make extracts, under certain heads, of every thing on agriculture occurring in the classics, so that I am now able to give a detailed description of the methods pursued by the Romans in grafting the grape vine, directly from the sources. In doing this, I shall not forget that *I do not write for philologists;* I shall, therefore, confine my references to such as I deem absolutely necessary.

The Romans were very fond of rural life and of agriculture; the great and rich among them had country seats, for which they selected the most beautiful spots among the mountains, near the sea-shore or lakes. Their generals, when occupied in warfare far from Italy, had frequently so much interest in rural affairs that they brought home with them valuable plants and trees. Lucullus introduced the cherry tree from Asia Minor into Italy. That they, being eminently practical, should have practiced various methods of propagating plants, is very natural, especially as they had the example of the Greeks before them; it is, however, strange, that they were of opinion *that a scion of any kind would unite with any stock.* Pliny (Historia Naturalis, xvii., 15, 5, 26) saw at Tibur Tullia a tree bearing walnuts, olives, grapes, figs, pears, pomegranates, and different kinds of apples. According to Palladius, (xiv.,) walnuts, chestnuts, apples, and pears, were not only grafted on their own stocks, but also on arbutus, sloe, willows, platanus, and the ash. According to Diophanes, (Geop., x., 76,) the walnut is only grafted on arbutus; according to Palladius, (ii. 15,) also on the plum and its own stock. Pliny (xvii., 15, 5, 26,) says that the platanus (Platanus orientalis, L.) unites most readily with scions of all kinds of fruit trees; second to it in this respect is only the oak. Diophanes (Geop., x., 76) asserts that apples grown on platanus become red. Columella relates (v., 11) that he planted a fig-tree near an olive-tree. Three years after planting, he cut the head of the fig-tree off, split its stem with a wedge, inserted in the split a twig of the olive-tree, the bark of which he had removed on two sides, and tied it. Three years after he cut the twig of the olive-tree from the mother plant, and it continued growing on the fig-tree. I must confess that I am at a loss to reconcile assertions so often repeated during a series of many years with the well-established fact that unions so unnatural can not be effected.

Still it is time to return to our object in view.

The *best time* for grafting the grape vine extends from the 20th of September to spring, even to June, according to Atticus, (Pliny, xvii., 25.) Mild, calm days during the increasing moon, from the first of March to the first of April, are most favorable for the operation. (See Columella, xi., 2.) Pliny (xvi., 25, and xvii., 30, 6) explains the cause of it by comparing the plants to the increased and intensified vigor of the life of animals in the spring.

The Romans practiced four methods of grafting the grape vine:

1. *Inarching.* Two vines growing near each other were united by wounding a shoot of each, and tying them together till they were united. The other method of inarching, which is performed by heading the stock, splitting it, and inserting a twig of another vine, has been mentioned above, when the experiment of Columella was adduced, who inarched a twig of an olive in a fig tree.

2. *Inserting the scion between the bark and the wood of the stock.* This method was chiefly resorted to where the stock was thick. (See Columella, v., 11.) It was afterwards superseded by the two following.

3. *Cleft grafting.* I prefer putting here the references together to avoid the frequent interruption of the description. They are, Varro, i., 41. Palladius, iii., 17. Pliny, xvii., 24. Columella, vii. Columella, iv., 29.

Three days before grafting, the stock is sawed off and smoothed with a knife. This is done that the sap may flow out. It is then split three fingers deep very carefully, and the split is opened by means of a smooth wedge of bone or iron. The scion ought to be cut three days previous, from that part of the vine which is exposed to the east; it ought to have three buds and the thickness of the little finger. The uppermost part of the vine yields the best scions, for in the middle it has not so much sap. The lower part of the scion is cut in the form of a wedge as long as the split in the stock. The cut ought not to be deeper than to make the pith visible. In inserting it some writers require that it should be done with both hands, but this is superstitious. Some tie the stock in the place to which they wish the split to extend. If the scion is pressed in too tightly, the vine will not bear until very late.

Some surround the place of the junction with a mixture of tar, chalk, sand, and cow dung; others tie around this, moss or sods by means of willow branches or soft tape, to protect the grafts against rain, cold. or wind. In Pliny's time it was thought sufficient to clay the whole over, so that the scion projected about two inches. The clay should be mixed with some chaff.

If possible, the graft should be *inserted near the ground, and the stock as well as the scion should be carefully covered with soil up to the top.* It is advisable to make some cuts in the stock, if there should be danger that the rising sap might damage the scion; it will then flow off.

Columella says (iii., 9) that he resorted to this method in grafting two jugera (Roman acres) with an early variety received from Spain.

4. *Grafting in a bored hole.* (Pliny, xvii., 25. Columella, v., 29.) Through a hole, bored in the stock, a shoot of another vine, growing near it, is put, clayed over, and tied with bark of the elm. If there is no vine growing near, a scion of the vine to be propagated is taken and cut to the length of about two feet. Its lower end is to be fitted to the hole by scraping the bark, inserted, and clayed over. The scion ought to have two buds above the stock.

This method is the most certain; for should the scion not grow in the first spring, it will in the second. The operation is very much facilitated by the in-

troduction of the gallic borer, (terebra gallica.) It does not heat the wood; the chips it makes are as fine as powder, while the borer formerly in use produced coarse chips (scobes) and left the sides of the hole rough.

[Horticola has here furnished us a valuable and interesting contribution to the history of the grape vine. While reading the classics, we pursued a course similar to that of Horticola, making notes of all allusions to agricultural and horticultural subjects, and in this way accumulated a large amount of interesting matter; but, unfortunately, our note book many years ago was destroyed with others, and we have never ceased to regret the loss. The belief of the early Romans, that all kinds of trees could be grafted into each other, is still shared by numbers of their descendants in Italy at the present day. This subject might be followed up profitably, and we trust Horticola will do it.—Ed.]

SPRING HOT-BEDS AND COLD FRAMES.

BY A JERSEY MARKET GARDENER.

Spring is again at hand, and with it come our preparations for forwarding and forcing to anticipate Nature by a few weeks or months.

I can offer little new in such matters except, perhaps, that, as our operations are conducted with a view to profit, and on a large scale, we flatter ourselves that in some respects our system is simpler and cheaper than that adopted in private practice, competition having the effect of drawing out all contrivances, so as to make our manner of working as profitable as possible.

In the raising of tender plants, such as tomato, egg, melon, or cucumber, there is often a great error committed in starting too early, as they can not be safely planted out in this district until the 20th or 25th of May. The 15th of March is much more preferable for starting the hot-bed than the 15th of February; and if the use of a green-house can be had by sowing in boxes there, there is no necessity for starting the hot-bed until the 10th or 15th of April, when the green-house plants that have been sown a month previous, in the green-house, may be planted in the frame.

Our manner of making hot-beds is different from that in general use in private gardens: whether the wood-work of the frame is stationary or portable, we invariably use a pit for the reception of the prepared hot manure. This pit is from 2 to 2½ feet deep, 6 feet wide, and of any length required. The advantage of this over having the hot-bed built above the ground is, that it requires less heating material, and, being all under ground, is but little affected by the outside temperature. The manure being duly prepared by two or three turnings, the pit is filled up—packed moderately firm—to within 9 inches of the top of the boards, the sashes put on, and kept close to "draw up" the heat. As soon as the heat is

found to be up in the frame—but not before—four or five inches of dry soil is regularly spread over the surface, in which is plunged a thermometer for a day or two, and when it indicates a temperature of 80 degrees, with a tendency to decline, the seed is sown or the seedlings planted, as the case may be. As the weather becomes warm, and the plants get vigorous, water is freely given, and air in warm, mild days. The best protection from frost at night we find to be straw mats, made long enough to overlap the sash at each end six inches, a mat for a six-foot sash requiring to be something over seven feet long.

For raising our spring plants of cabbage, cauliflower, or lettuce, we use only cold frames; that is, frames on the surface of the ground without any heating material; these we usually start by the first week in March. Have the ground finely pulverized, and sow rather thin. By one month from the time of sowing we have fine, strong, hardy plants for planting in the open ground. Careful attention is necessary in giving abundance of air, and by covering up by straw mats at night so as entirely to exclude frost.

We have practiced this plan for some years past, and find it cheaper, requiring less attention, and producing much better plants than those raised in hot-beds.

[The above, from a gardener who works hot-beds and cold frames by the acre, is worthy of the reader's attention. We have no hesitation in giving a decided preference to hot-beds made below the surface, as being more lasting and economical. Hot-beds for raising plants for the open air are often overdone; they ought to be confined to such tender plants as the tomato, egg plant, etc., and for forcing an early crop of radishes, lettuce, cucumbers, etc.—Ed.]

THE CINERARIA.

BY A. VEITCH, NEW HAVEN, CONN.

In the estimation of many the Cineraria holds an important place as a green-house plant; and when the brilliancy and variety of their colors are considered, their fresh and luxuriant appearance, the ease with which they can be obtained and cultivated, this regard seems by no means misplaced. They are not difficult to manage, but, like all other plants, there are modes of treatment which suit them better than others; and, having grown them for many years with tolerable success, a few hints relating to what we consider the best way of doing so, might not be unacceptable to some of the readers of the Horticulturist.

The most common way of propagating them is by sowing the seeds annually; and by doing this in August, the plants will be in good condition for flowering in the green-house from January, if desirable, until May of the succeeding year. The seed may be sown in shallow pans or in pots well drained, placing them in a

cool, sheltered situation, taking care not to saturate the soil in watering, and at the same time never allowing it to become dry. The most suitable soil to use is loam, leaf-mould, and sand, in about equal parts. By adding a little charcoal in a powdered state, the germination of the seeds will be greatly facilitated, and a vigor bestowed upon the plants which otherwise they might not possess. The plants, when sufficiently large to handle, may be potted at once into the smallest sized pots, placing them in a frame or pit, so as to shelter them from rains and shade them from sunshine. In a few days the shade might be removed at all times except during the heat of the day, when the sun shines. It is better to keep them rather close for a week or two in the daytime; should the weather be dry and hot, shading, when necessary, as, by so doing, they will suffer less from exhaustion, than when fully exposed to a dry, hot atmosphere. By removing the lights every night when rain is not apprehended, and sprinkling the plants overhead, at the same time dampening the ground several feet beyond where they stand, they will grow rapidly, and be fit to shift into larger pots in about four weeks, using in this operation loam and rotted manure in about equal parts, the charcoal not made finer than it can readily be done with a hammer, or the back of a spade; and should the loam naturally be fine in the texture, it would be greatly improved by sifting the finest particles out of it before mixing with the other materials. If all goes well, they may be shifted into the pots in which they are intended to flower, about the first of December; and if really fine plants are wanted, these should not be less than nine inches; the compost used the same as last, only not quite so fine, and a little hen manure added, if it can be got.

But although raising the plants from seed every season is almost the only way in which they are propagated, it is evident that by this mode special favorites will be lost, as "Nature," in cases of this kind, "never repeats herself." It may be true that some difficulties stand in the way of preserving them through the summer, but these are by no means insurmountable, and, provided the proper means are adopted, not even difficult.

The plants wished to be preserved, if seedlings, should be cut down before exhausting themselves in flowering, and top dressed with fine mould, taking care to pinch off all shoots afterwards which manifest a disposition to flower. In the case of old varieties, instead of trying to preserve the old plants, it is better to have a set of young ones propagated for this purpose in the fall or early winter. These should be in quart pots; and if not allowed to flower, will be in fine condition for keeping against another year, while altogether larger and finer specimens can be made of them than seedlings. As soon as the season will permit, they should be set out of doors, in a shaded and airy situation, where they may remain until about the first of August, when they should be taken out of the pots and the balls reduced, and put into such sized pots as will permit of their being again shifted before they are transferred to those in which they are intended to flower. Throughout the summer they should never be allowed to get dry, and, as is not

unlikely to happen, thrip, or some other enemy, may take to them as if they were all their own; if so, they can be cleaned by immersing in water containing two ounces of Gishurst Compound to the gallon. As during this season they will be in a state of comparative rest, little attention will be necessary, and no alarm need be felt, should they even look a little unsightly. If the crown can be preserved with even tolerable success, all will be well, as, in the autumn, after being re-potted into fresh mould, they will start and grow with the utmost luxuriance. Such plants as we now speak of, when potted in the fall, may be placed in a frame for a week or two, and kept rather close; but after they have fairly started into growth, they will do better fully exposed, until they are in danger from frosts—so placing them, however, as to be screened from the midday sun.

In the routine of management perfect success very much depends upon the way in which they are watered, and it would not be difficult to prove that the want of it, in many cases, is owing as much to this as any other cause. When they are allowed to become so dry as to wilt, or when the mould in the pots is all the time saturated with water, they are in a fair way of being spoiled. In the one case they will be weak and sickly, and liable to be preyed upon by many enemies; and in the other, as they receive more water than is necessary for their own wants, the leaves will have a blanched appearance, while many of them will suddenly droop and die; the flower stems will grow long in the joints, and the flowers be few and straggling. Too much importance, therefore, can not be placed upon the mechanical condition of the soil in which they are grown. The Cineraria is a soft and rapid-growing plant, with large and extremely hygrometrical roots, clearly indicating their being necessarily possessed of great absorbing power, to suit the requirements of the plant. If, then, the mould with which they are surrounded is close and adhesive, it is easy to perceive they will just be in a condition in which they can not fully develop themselves, and perform those offices so needful in the economy of the plant. Hence arises the rule in practice not to make the mould too fine, but rather rough, and capable of taking in water like a sponge, and giving it out with as much facility. When this is the case, there need be little danger apprehended from too liberally supplying them with water, as the provision made for its escape will be such as to render it impossible for the mould ever to become water-logged. And then, too, the air will readily penetrate the entire mass, which, in addition to other benefits, will lighten the temperature of the soil, and, of course, promote a more vigorous action in the roots—a point of the utmost importance, whether in regard to growing a Cineraria in a pot, or a grape vine without one.

[The Cineraria is an old but too much neglected plant; Mr Veitch has done well in calling attention to it, and furnishing directions for its cultivation. It is in all respects a beautiful and showy flower. Our practice has been to propagate esteemed varieties by cuttings put in charcoal and sand, the cuttings being taken mainly from the base of the plant.—Ed.]

AMERICAN EVERGREEN TREES.

BY C. N. BEMENT.

"THERE is a lamentable poverty of evergreens," said Mr. Downing, "in the grounds of many country places in this country. Our plantations are mostly deciduous; and while there are thousands of persons who plant in the country such trashy trees as the Ailanthus, there is not one planter in a hundred but contents himself with a few fir trees as the sole representatives of the grand and rich foliage family of evergreens.

"They forget that, as summer dies, evergreens form the richest back-ground to the kaleidoscope-coloring of the changing autumn leaves; that in winter they rob the chilly frost-king of his sternest terrors; that in spring, they give a southern and verdant character to the landscape in the first sunny day, when not even the earliest poplar or willow has burst its buds.

"More than this—to look at the useful as well as the picturesque, they are the body guards, the grenadiers, the out-works and fortifications, which properly defend the house and grounds from the cold winds and the driving storms that sweep pitilessly over unprotected places in many parts of the country. Well grown belts of evergreens — the pines and firs — have, in their congregated strength, a power of shelter and protection that no inexperienced person can possibly understand, without actual experience and the evidence of his own senses. Many a place, almost uninhabitable from the rude blasts of wind that sweep over it, has been rendered comparatively calm and sheltered; many a garden so exposed that the cultivation of tender trees and plants was almost impossible, has been rendered mild and gentle in its climate by the growth of a close shelter, composed of masses and groups of evergreens."

Plants or trees that retain their verdure through the winter of northern climates are called evergreens, to distinguish them from those that shed their foliage, and remain leafless during our cold seasons. The most common evergreens are those belonging to the pine; spruce and fir may serve as specimens.

THE PINE FAMILY.

The Pines, Firs, Spruces, Junipers, and Cedars form a very interesting, distinct, and striking natural group. The name evergreen, by which they are commonly known, is liable to the exception that one of this genus found in our climate, the Larch, loses its leaves in winter. But it is so distinguishing a characteristic of the rest, that it is likely to be long retained. This family has claims to our particular attention, from the importance of its products in naval, and especially in civil and domestic architecture, in many of the other arts, and in this country, one of the most rapid growth, attain to a larger size, and rise to a loftier height than any other trees.

The White Pine may be selected as the American representative of the pyra-

idal trees, being the most important as well as the most striking in its appearance. It is a northern tree, not extending so far south as the region of the Cypress and Magnolia, and attaining perfection only in the northern part of the continent. In the New England States it contributes more than other species to the beauty of our landscapes, where it is commonly seen in scattered groups, but not often as a solitary standard. We see it in journeys, projecting over eminences that are skirted by old roads, shading the traveller from the sun, and protecting him from the wind. We have sat under its fragrant shade, in our pedestrian tours, when weary with heat and exercise we sought its gift of coolness, and blessed it as one of the benign deities of the forest. We are familiar with it in all pleasant and solitary places, and in our afternoon rambles we have listened to the Green Warbler who selects it for his abode, and who has caught a melancholy tone from the winds that from immemorial time have turned to soft music its long sibilant leaves.

The white pine is a tree that harmonizes with all situations, rude or cultivated, level and abrupt. On the side of the mountain it adds grandeur to the declivity, and gives a look of sweeter tranquillity to the green pastoral meadow. It yields a darker frown to the projecting cliff, and a more awful uncertainty to the mountain-pass or the hollow ravine. Amid desolate scenery it spreads a cheerfulness that attracts nothing from its power over the imagination, while it relieves it of its terrors by presenting a green bulwark to defend us from the elements.

Nothing can be more cheerful in scenery than the occasional groups of pines which have come up spontaneously on the bald hills near our coast, elsewhere a dreary waste of rocks, stunted shrubbery, and prostrate juniper. In the forest the white pine constitutes the very sanctuary of Nature, its tall pillars extending into the clouds, and its broad canopy of foliage mixing with the vapor that descends in the storm.

Such are its picturesque aspects: but in a figurative light it may be regarded as a tree symbolical of benevolence. Under its outspread roof, thousands of otherwise unprotected animals, nesting in the bed of dry leaves which it has spread upon the ground, find shelter and repose. The squirrel subsists upon the kernels obtained from its cones; the rabbit browses upon the spicy foliage, which is prostrated in its conservatory shade; and the fawn reposes on its brown couch of leaves unmolested by the outer tempest. From its green arbors the quails may be roused in midwinter, when they resort thither to find the still sound berries of the Mitchella and the Wintergreen. Nature, indeed, seems to have designed this to protect the animal creation, both in summer and winter, and we are persuaded that she has not conferred upon them a more beneficent gift.

As an object of sight, the white pine is free from some of the defects of the Fir and Spruce, having none of their stiffness of foliage and inflexibility of spray that cause them to resemble artificial objects. It has the symmetry of the fir, joined with a flowing grace that assimilates it to the deciduous trees. With sufficient

amplitude to conceal a look of primness that often arises from sympathy, we observe a certain negligent flowing of its leafy robes that adds to its dignity a grace which is apparent to all. It seems to wear its honors like one who feels no constraint under their burden; and when smitten by tempest, it bids no defiance to the gale, bending to its wrath, but securely resisting its power.

The white pine, often called "Weymoth" pine, has sometimes fallen into disrepute with planters who have set it in poor soil, or where it was overshadowed by other trees. Give it sunlight, abundance of room to spread itself, and a deep moist loam, and it will win a good name from every body. No foreign pine surpasses it. The white pine is hardy, bears transplanting well, and is always green; it is too large for village door-yards; its appropriate place is at the outskirts. It makes a noble park-tree, and no pleasure grounds of any extent should be without it.

The Yellow Pine.—The Yellow Pine, by some called Pitch Pine, has neither grace nor elegance to recommend it; though it is allied to the pyramidal trees, it approaches the shape of the round-headed trees. There is a singular ruggedness about it; and when bristling all over with stiff foliage that sometimes covers its branches, down almost to its roots, it can not fail to attract observation. Trees of this species, for the most part too rough and homely to please the eye, are not generally valued as objects in the landscape; but there is a variety in their shape that makes amends for their want of comeliness, and gives them a marked importance. We do not, in general, sufficiently appreciate the value of homely objects among the scenes of Nature, which are, indeed, the ground-work of all charming scenery, and set off to advantage the beauty of more comely things. They prepare us, by increasing our susceptibility, to observe more keenly the force of beauty in other objects. They give rest and relief to the eye, after it has experienced the stimulating effects of beautiful forms and colors, which would soon pall upon the sense; and they are interesting to the imagination by leaving it free to dress the scene with the wreaths of fancy.

It is from these reflections that we have been led to prize a homely tree as possessing a high value by exalting the impressions of beauty which we derive from other trees, and by relieving nature of that monotony which would attend a scene of unexceptionable beauty. This monotony is apparent in almost all dressed grounds of considerable extent. We soon become entirely weary of the overflowing lines of grace and elegance, and the harmonious blending of forms and colors introduced by art. We are soon weary of luxuries; and when we have been strolling on grounds laid out with gaudy flower-beds, the tired eye, when we go out into the fields, rests with serene delight upon rough pastures bounded by stone walls and hills dotted with lichens and covered with boulders.

The homely yellow pine serves this important purpose of relief in the landscape of nature. Trees of this species are abundant in sandy levels in company with the scrub-oaks, and the slender and graceful white birch, "The Lady of the

Woods," as the poet Coleridge called it. From these pines proceed the delightful odors which are wafted to our windows by a mild south wind, not less perceptible in winter than in summer, and which are in a different manner as charming as a beautiful prospect.

All these pines require to be cultivated in large masses. They naturally grow thus, and although, when so growing, they seem to be extremely hardy, they do not thrive when solitary, but are scorched by the sun and stunted by the cold and wind. In masses, especially, when large enough to cover several acres, they not only protect each other, but are the best possible nurses for the tender deciduous trees.

THE ADIRONDAC GRAPE.

(*See Frontispiece.*)

We have been furnished with a drawing of the Adirondac grape, an engraving from which we present as a frontispiece. A specimen of the fruit was sent to us last fall, but it was not in a condition to be tested. We have been promised some fruit next fall, when we shall be able to give an opinion. In the mean time we give a history of the grape furnished by a gentleman conversant with it. It is as follows:

"The want of a grape that would mature in the short northern summer in the open air, has long been experienced by the horticulturists of that section. Many experiments have been made, and years of careful attention devoted to the subject without adequate results, the known varieties suffering from the shortness of the season, and notwithstanding every mode of treatment, failing, in most cases, to mature.

"Among others who had devoted much patient labor to experiments attended with considerable expense, was John W. Bailey, Esq., of Plattsburgh, N. Y., who is well known in the northern section of this State as an ardent follower of the pursuit of horticulture, and the exhibitor of several novelties in the way of fruits, at the northern exhibitions. Mr. Bailey's investigations have at last led to the discovery of a new variety of grape which he feels satisfied is destined to fill the deficiency and have an extended usefulness. The original discovery was wholly accidental. J. G. Witherbee, Esq., of Port Henry, Essex County, N. Y., who in connection with his large iron mining interest in that section, is one of the most successful amateur fruit growers in the Champlain Valley, in adding a piece of new land to his garden, noticed a vine growing wild. The vine was quite large, and Mr. Witherbee, considering it one of the common species, directed that it should be grubbed up to make place for a root crop. A year or two after, a small vine made its appearance near the spot, and as it grew vigorously he gave it a trellis, and trained it in the same manner as he did his Isabellas and other

varieties, since which time it has received equal care in pruning, laying down, and winter covering. It commenced to bear four years ago, ripening previous to the 10th of September, and before the Isabella had commenced coloring, or had even attained its size, and two weeks before the ripening of the Northern Muscadine, and about three weeks before the Delaware.

"The fruit is larger than the Isabella ; in cluster and berry of about equal size, the same color, very compact bunch with prominent shoulders; the berries are perfectly round and adhere firmly to the receptacle when fully ripe; it is very sweet and juicy, with a flavor peculiar to itself, with scarcely any perceptible pulp, and with less seeds than most other varieties. Mr. Witherbee brought this grape to the notice of Mr. Bailey as experienced in such matters while he was attending the Essex County Agricultural Fair, at Elizabethtown, in the autumn of 1860. Samples were sent to him for examination. The fair occurred on or about the 26th of September, at which time Hartford Prolific, Northern Muscadine, and Delaware were not ripe, while the season of the Adirondac was passed and the fruit gone, excepting the samples sent. Mr. B. visited the garden of Mr. Witherbee to examine the vine and form a more correct judgment of its character and value. The result of the visit satisfied him that it was a rare acquisition to northern collections. He immediately arranged for the entire control of the variety and the privilege of its introduction. He exhibited the fruit at the Montreal Horticultural and Agricultural Society fair in the autumn of 1861, and was awarded the special silver medal of the society in appreciation of its introduction as the grape best adapted to the latitude of Canada. The original vine was discovered at the eastern slope of an Adirondac peak, perhaps fifty rods from the shore of Lake Champlain. It is a prolific bearer, and undoubtedly the earliest to mature of any variety known. The result of its cultivation in a warmer region is one as yet to be tested, and is looked forward to with interest by those familiar with its advantages. It is supposed that in a more southerly latitude it will supply the great desideratum of a very early grape, maturing at a season when the other out-door varieties are not yet available."

LARGE OR SMALL TREES—WHICH FOR AN ORCHARD?

BY MYRON B. BENTON.

There is probably no subject on which advice has been more uniform in our horticultural journals, than that regarding the size of fruit trees for transplanting into an orchard. The nation which is so proverbially *fast*—whose boys, it is commonly reported, reach tobacco-chewing maturity before the age of ten, and whose girls are reckoned very backward if they have not received several offers of marriage before their teens—must, of course, carry out its principles into every department. Transplant only small fruit trees, is the advice from all quarters. It will pay better in

the end, it is said, than large ones, for they will grow enough faster to be able to bear sooner, and that nothing is gained in the long run by so much hurry, etc.

But, without venturing to say any thing against the practice of our youth chewing tobacco with their *milk-teeth*, I will make bold to advance the opinion, contrary to all this advice from almost every source, that fruit trees (especially standard apples and pears) should not leave the motherly arms of the nursery, until they are several years older than at the time when they are generally placed in the orchard.

Let us see how this matter stands. Little trees, only two or three years old, are scattered over the ground, at the rate of about forty or fifty to the acre; as far apart as they will need to be when they have stood a century. During their first six or eight years in the orchard, for various reasons, they require a great deal of labor and care; very much more than if standing for that time in the nursery. They are a great hinderance to the cultivation of the field. One who has had no experience in the matter could not be made to comprehend the extra labor and annoyance of cultivating a crop among young trees, in plowing, harrowing, driving in with a team, etc. Small trees, also, even with the greatest care, are much more liable to injury from a great variety of causes than large ones; not only from teams and implements used in cultivating, but from the crops on the field; they are so much more easily over-topped and smothered by any thing growing around them. The general care of the trees, too, is much increased; the same degree of culture being obtained only by much more care, as the trees are scattered over so much ground.

Under all these considerations, would it not be below a fair estimate to say, that during the first six or eight years, after the age at which trees are usually placed in the orchard, they would require five-fold more care and labor than if in a nursery, and would not be near as well cultivated? I think it would be advisable for any one wishing to set out an orchard, who can not obtain trees of large size, to take those of the common market size, and place them in a nursery again; but one in which they would have much more room than before. If thus managed, in the right manner, I have no doubt that fruit could be obtained from them sooner than by the common method. A choice piece of land should be selected for the purpose, and the trees placed from four to six feet apart each way; being careful to leave a wide headland all around, for the horse which cultivates them, to turn upon. In such a place they could be well taken care of, with but trifling labor. No one but the owner need enter that little plot, and Pat would be spared many sound scoldings for letting the oxen run over choice trees. After they had attained at least six years' additional growth, would be soon enough to place them in the orchard. All that time the usual routine of farming could go on in the field destined to receive them, unencumbered with little trees; and this every one will know, who has had experience, is no slight matter.

The main objection that will be advanced against such a course is, the extra labor of transplanting large trees. But the fact is, this matter is vastly overrated

by most people who, either from inexperience or mismanagement, have been unsuccessful. I believe that, *all things considered*, the labor of starting an orchard is less, if the trees, when set out, are twenty instead of six feet high. The simple act of transplanting would, of course, be more expensive. Suppose but four could be taken up and set out by two men in a day, it would require them but ten days to fill an orchard of an acre. This extra labor would weigh as nothing against the six or eight years of additional trouble, had they been out of the nursery during that period.

And the risk of transplanting large trees, too, I think is much overrated; if the operation be rightly managed, I think it can be performed with uniform success. Notwithstanding all that has been written on the subject of transplanting trees, is there not still much room for improvement? I mean among intelligent men who have eschewed the old method. For a man who should now follow the fashion belonging to the by-gone days of cider-orchards, may as well be given up as an incurable case. There is one deficiency in particular, in the method of many, whose way in the main is right; and the great trouble is in such cases generally that the operator thinks he is attending to all the scientific details, and doing it "book-fashion." I refer to a lack of care in sufficiently protecting the small roots from drying. Most would think it a work of supererogation to use a watering-pot and blankets in removing a tree a short distance, especially if the day were not sunshiny; but for myself, I maintain that a watering pot is second only to a spade as an implement in transplanting. The other well-known precautions are of course necessary, but this I consider the most important, but I fear the most frequently neglected of all. The hydropathic system is the only sure remedy, and the watering-pot is the guardian spirit that will carry trees safely through the transplanting process. Some can never be made to comprehend how quickly the minute fibrous roots are deadened by a few moments' exposure to the air; but let it be borne in mind, that the tree, in a state of Nature, would not, in its whole century or more of existence, have its roots so dry for an instant as they generally become in removing, and it will not seem incredible that they are so little fitted to bear an exposure. Have a watering-pot constantly on hand, and keep the roots dripping wet, from the moment they are first in sight until they are buried again.

In removing large trees, the tap root must be cut off, and it is not necessary to retain the side ones at much distance from the centre. *Success in transplanting depends less on the large amount of roots retained, than on the care with which a few are preserved from injury.* Avoid dryness, and wounding the bark of the roots, with attention to mulching for the first one or two seasons, and large trees may be removed much easier than is generally believed.

About six years ago, I removed a pear tree which had stood for more than thirty years in a field distant from the house. It was only twenty-six feet high, having made but little progress for the length of time; in fact, the rings of growth were so close

together, that it almost needed a magnifying glass to distinguish them. The labor of transplanting took two men a half-day, including the preparation of the soil to receive it. It has borne annually since, from one to two pecks, except the first two years, when that was prevented by picking off the blossoms; for a tree should never be suffered to bear for two or three years after removing, nor should any attempts be made to graft it in that time. It had been the intention to graft this tree, after it had fully recovered from the shock of transplanting, but it was found to yield a natural fruit, which we scarcely place second to the White Doyenné.

An apple tree considerably larger than that I removed three years ago with success, and the whole labor required two men about three-quarters of a day.

My father set out an apple orchard of two acres about nine years ago. Most of the trees were from a neglected nursery, but were of large size. They have been grafted since; but, notwithstanding all these disadvantages, they have borne considerable fruit for the last few years; and the orchard, when compared with others set out at the same time, appears very much in advance. The ground has been constantly cropped from the first, a great deal of the time with corn; a practice which would have ruined small trees.

I give these merely as instances, to show that the opinions are not mere theory unsupported with practice.

[We like to see a subject looked at from all points of view. The advice so generally given in horticultural journals is based upon certain recognized facts, and we are compelled to say that the advice is sound. We have had no inconsiderable experience in transplanting large trees, with probably as much success as usually attends the operation; yet our experience, as well as widely extended observation, leads us to the conclusion that it is wiser to plant small trees than large ones. We have transplanted trees of large size with what would be called good success; but it has been done under favorable circumstances, and with much labor and expense. The trees have never recovered the ill effects of the removal; small ones planted at the time are now, in fruitfulness and every other particular, in far better condition; and this we take to be the general experience. When a large and valuable tree must be moved to save it, the labor and expense necessary to insure the greatest measure of success should not be spared. Moving trees from one part to another of one's own lands is quite a different thing from planting trees from a nursery; he who should undertake to plant trees from a nursery of the size and age referred to by Mr. Benton, would lose not less than eighty per cent. of them. Then, again, the quantity of fruit he gets from his large transplanted Pear tree is no encouragement to plant large trees. It is true that we are a fast people; in some things too fast; but if, with generous treatment, a Pear tree eight or ten years from the bud, will yield us three pecks or more of Pears, why should we wait twenty or thirty years for them? Transplanting is an unnatural and violent process. In France, with a climate infinitely more favorable than ours for such an operation, experiments in transplanting large trees, skilfully conducted, have for some years past been made, and they have recently been reported as failures. This, we think, must be accepted as the general rule; like all other general rules, it will now and then have its exceptions. We think the horticultural journals are right in not recommending the planting of large trees.—Ed.]

EDITOR'S TABLE.

To Contributors and others.

Communications, Letters, Catalogues, Periodicals, Remittances, Packages by Express, Advertisements, &c., should be directed to MEAD & WOODWARD, Editors and Proprietors, 37 Park Row, New York. Exchanges should be addressed to "THE HORTICULTURIST."

OUR ADVERTISING SHEET.—We take peculiar pleasure in calling attention to our advertising columns for the present month, where will be found whatever may be required in the operations of the coming spring in the orchard, the vineyard, or the garden, or is calculated to add to the comforts and conveniences of rural life. We venture to say, that those whose energy and enterprise bring them before the public in these war times, are prepared to execute all their orders in a prompt and business-like manner. It may be somewhat remarkable, but it is a gratifying fact, that during the late depression in all kinds of business, the subscription list of the Horticulturist has steadily and largely increased; and our advertising patronage for this month quite equals that of any preceding month. The reader should make a careful examination of our advertising columns, not only as a matter of interest and information, but as suggestive of business revival consequent upon the sinking fortunes of the great rebellion.

CLARK'S KNICKERBOCKER.—The friends of Mr. Clark will be rejoiced to learn that he is about to issue a Monthly under the name of *Clark's Knickerbocker*. It will, of course, be a counterpart of the real "Old Knick;" in fact, the "Old Knick" itself, with all its original raciness and delightful humor. The thousands who have heretofore been gladdened with the monthly visits of "Old Knick," will joyfully welcome his visits again. Spread the "Table," Mr. Clark, and let the good things "cirkelate."

MOTTIER'S WINE.—We have lately received a sample of Mr. Mottier's wine of a new vintage, made on the lees. It is in all respects a first class wine of undoubted purity, and stands at the head of all wines that we have yet received. There is no deception about it. Our standard is the *pure, unadulterated juice of the grape*, and wine makers *must* come up to that.

PRAIRIE FLOWERS.—We have often wondered why some of our enterprising seedsmen did not collect and offer for sale the seed of some of our beautiful prairie flowers. This, at last, has been done by Mr. Heffron of Utica, and we shall ex-

pect, in consequence, to see some pretty additions to our flower borders. This field has been left, heretofore, almost entirely to European collectors.

Room Plants.—We had expected to give an article on Room Plants from Mr. Bridgeman, but he loaned his manuscript, and lost it. We shall hereafter give more attention to this subject, a sad bereavement having brought it home to us with peculiar force. It was a mother who, while we were yet a child, first developed and directed our love of plants. The hours of enjoyment we have since passed among them, we can never forget. Whatever of good we may have done in the world, whatever influence we may have exercised in developing a love of the beautiful in nature, with all its rich stores, we owe it all, and more, to a mother's love. That mother, since our last issue, after much patient suffering, has passed peacefully to the better world. The flowers that she taught us to love, the flowers that she so much loved while living, it shall be ours to plant on her grave, that their sweetness may mingle with the sweetness of the memory that she has left behind her. Peace to thee, Mother.

Brooklyn Horticultural Society.—We trust the members and friends of this Society will bear in mind that there is to be a spring exhibition at the Academy of Music, and prepare for it accordingly.

Notice to Subscribers.—The large addition of new subscribers, and the prompt manner in which most of our old ones have renewed for 1862, have been very gratifying. There are still some, however, who have not yet renewed; we send them the present number, with the request that they will please inform us whether they wish to continue.

The right Talk.—A clerical friend, in renewing his subscription, uses the following language. We commend it to the consideration of all his brethren, as there is much truth in it.

"I look upon the subject of Horticulture as of first rate importance to every man, but inexpressibly so to ministers as a source of relaxation and usefulness. I have said much to my brethren on the subject, but they do not appreciate it. I am called an enthusiast, but mind you, they like to call with their ladies to *get* flowers. But there is a good time coming, when men will know and feel that it is *God-like* to beautify the spot they call home, and when all do this our land will be 'beautiful and bright with freedom's holy light.' May it come soon."

The Pennsylvania Horticultural Society.—We have received the "Programme for the year 1862." We have in this a list of officers and committees for 1862, the regulations of the Library, order of meetings and monthly topics for discussion, and a schedule of premiums. We are very glad to see that the Society has adopted the feature of monthly conversational meetings in connection with monthly exhibitions. This will greatly increase the Society's usefulness, besides diffusing a spirit of life and activity among all its members. In a notice at the beginning it is stated that the Society "is the oldest Horticultural Society

in the United States, having been instituted in 1827," and incorporated in 1831. The statement is not correct as to the Pennsylvania Society being the oldest. The New York Horticultural Society was instituted in 1818, and incorporated in 1822, and it therefore has a prior claim of many years. The Pennsylvania Society has marked out a large field of usefulness, and we hope it may occupy it profitably to itself and the good cause.

CATALOGUES, ETC., RECEIVED.

C. B. Murray, Foster's Crossings, Warren Co., Ohio.—The Nansemond Sweet Potato: Directions for Propagation, Culture, and Preservation; also, Experience of Growers in different parts of the Country.—A useful little compend; but at Mr. Murray's prices, it would be cheaper to buy the plants than to propagate them.

Henry A. Dreer, Seedsman and Florist, Philadelphia.—Garden Calendar for 1862, designed to furnish brief Directions for the Cultivation and Management of the Esculent, Flower, and Fruit Garden, containing select Lists of Seeds, Trees, and Plants. Illustrated with Wood-cuts.

Barnes & Washburn, Harrison Square, Mass.—Catalogue of a choice Collection of Flower and Vegetable Seeds, embracing many new and rare varieties, &c.

H. B. Lum, Sandusky, Ohio.—Catalogue of rare and beautiful Flower Seeds.

E. Ware Sylvester, Lyons, N. Y.—The Oporto Grape (cricular).

Isaac Jackson & Co., successors to T. M. Harvey, Harmony Grove Nurseries, West Grove, Chester Co., Penn.—Descriptive Catalogue of Fruit and Ornamental Trees, Shrubbery, Roses, &c.

Haines & Pell, successors to Tredwell & Pell, No. 27 Cortlandt St., New York.—Catalogue of Agricultural and Horticultural Implements, Machinery, Fertilizers, &c.—This new firm had existed scarcely three weeks when their establishment was entirely destroyed at the Fulton St. fire. We offer them our sympathy, and wish them abundant success in their new store.

A. S. Fuller, Horticulturist, Brooklyn, N. Y.—Spring Catalogue of Trees, Plants, and Shrubs, including wholesale and retail prices of Grape Vines. Catalogues sent free to all applicants.

Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y.—Descriptive Catalogue of hardy Ornamental Trees, Shrubs, Roses, &c.

J. M. Thorburn & Co., New-York.—Descriptive Catalogue for 1862 of Vegetable and Agricultural Seeds, Garden, Field, and Fruit Seeds, &c., embracing every standard and improved variety.

Isaac Pullen, Hightstown, Mercer Co., N. J.—Catalogue for Fall of 1861 and Spring of 1862 of Fruit and Ornamental Trees, Vines, &c.

Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y.—Descriptive Catalogue of Fruits.

B. K. Bliss, Springfield, Mass.—Descriptive Catologue of a choice Collection of

Vegetable, Agricultural, and Flower Seeds, &c.; to which is added, a descriptive list of small Fruits, viz., Grapes, Strawberries, Gooseberries, Raspberries, Currants, &c.

Thomas Morgan, Lyons Farms, between Elizabeth and Newark, N. J.—List of Geraniums, Fuchsias, Pinks, Bulbs, &c. 1862.

Alfred Bridgeman, 876 Broadway, New York.—Catalogue of Vegetable, Flower, and Field Seeds, with Directions for their cultivation.

Andrew Bridgeman, 878 Broadway, New York.—Descriptive Catalogue of French Hybrid Gladiolus and other Summer and Autumn blooming Bulbs.—There are some 200 varieties of this splendid flower, very fully described.

Parsons & Co., Flushing, L. I.—Catalogue of Fruit and Ornamental Trees, Shrubbery, &c. Also, Exotic Plants.

J. Knox, Box No. 155, Pittsburgh, Penn.—Price List of small Fruits, &c., for the Spring of 1862, Strawberries, Raspberries, Blackberries, Grapes, &c.

Correspondence.

EDITOR OF THE HORTICULTURIST:—Dr. Houghton, in his communication in the January number of the HORTICULTURIST, says he is well assured that his position in respect to the value of native grapes is sound and just. He thinks there is no native grape worthy of cultivation in vineyard form; that native wine is wretched stuff; the grapes not fit to eat, and do not pay to raise for market.

I do not intend to make any comments at this time, further than to say that I think it remarkable that the Doctor made this discovery at this late day, considering the existence of fortunes made from native vineyards, (the taxes on a single one of which are over $30,000 yearly,) and results equally splendid in my own vicinity.

Now, as he calls for facts and statistics, I will refer him to a few gentlemen 70 miles north of New York, who will testify to the following, if necessary.

H. W. Murdfeldt, Esq., of Newburgh, Orange County, N. Y., has a vineyard, the vines of which were planted at different periods. First lot planted, 100 vines, have borne four crops; second lot planted, 150 vines, have borne one crop. These 250 vines are all that I will speak of in connection with this vineyard, as the others are younger. These vines, it was thought, did not occupy one half acre, but to make the calculation safe, it was considered as half an acre. Product the past year, 3700 lbs.; brought 14 cents per lb.; variety, Catawba. When these vines get old enough to bear a full crop, they will produce as many more pounds. The ground on which the first vines were planted was not trenched. He now trenches as he plants. Mr. Murdfelt says they have ripened fully each year.

Mr. Charles Wooley, of New Paltz Landing, Ulster County, N. Y., last year produced from three-fourths of an acre four tons of the most beautiful grapes I ever saw. I think I hazard nothing in saying that his clusters averaged half a pound each. They brought ten cents per pound. Varieties, Catawba and Isabella. The earth was not trenched. Mr. Wooley never fails to ripen his grapes.

S. B. Trowbridge, Esq., a retired gentleman of Poughkeepsie, who cultivates the vine more particularly for the pleasure it affords, produced last year at the rate of $1,024 per acre. This gentleman gave me a very interesting statement of his mode of cultivation, which you may have, if useful.

Mr. Bruyn, of Esopus, Ulster County, (a near neighbor of R. L. Pell, Esq.,) and Isaac Meritt, Esq., of Hart's Village, Dutchess County, both last year produced results equal to any of the above; so I am informed by their neighbors, but not having seen them and their grounds, can not speak as of facts.

Messrs. J. Heaton and W. Kniffin, my neighbors, have equalled any case I have named. Mr. Heaton's vineyard covers several acres.

No one acre of the above cost over $200—cost of vines, preparation, and planting. I think any person can arrive at a conclusion between these figures and the Doctor's declaration that our native grapes are worthless.

I think the Delaware and Concord will far exceed the Isabella and Catawba in value for vineyard purposes.

I think there will be no disagreement with the Doctor in relation to his having eaten those "sour grapes," for it is apparent that his "teeth are on edge."

A. J. Caywood.

[The facts presented by Mr. Caywood have a direct bearing on the subject, and could be greatly multiplied. We think we may venture to say for the Doctor, that he is open to conviction. We have an article from Mr. Murdfeldt, detailing his success in grape culture. Will you please send us the account Mr. Trowbridge gave you? We shall be very glad to have it.—Ed.]

Catawissa Grapes.—Messrs. Editors:—I was greatly surprised, when overlooking the proceedings of the Fruit Growers' Society of Western New York, to find the Hartford Prolific, Rebecca, Concord, Perkins, Diana, and some other Grapes, extolled as well-suited to their climate, and the Catawissa, a variety possessing merits and advantages for northern culture beyond every one I have named, completely ignored. I am much surprised to find Mr. Barry and others who took part in the discussions, so very far behind the age. The Catawissa is a vine of exceeding hardihood, and of great vigor, producing most abundant crops. The berries are large, oval, the same color as the Isabella, rather sweeter, of very good flavor, and free from all the mustiness of the Hartford Prolific. The clusters are similar in size to those of the Isabella, and the berries hang per-

manently, and never drop like the Hartford Prolific, Northern Muscadine, and some others. But its most important advantage is its precocity. It is the earliest ripening good table and market Grape we yet have, ripening at the same time as the Canby's August, and fully two weeks or more before the Isabella is eatable. There are several other early, hardy, and very estimable Grapes which our Western friends appear to not be cognizant of, to which I will refer in a future article. Yours most respectfully,

Flushing, N. Y. W. R. PRINCE.

[The Catawissa mentioned by Mr. Prince is identical with the Creveling, which we figured and described in November, 1860. Bloom is another synonym for the same Grape. It is a hardy, early Grape, not yet valued and known as it should be.—ED.]

MESSRS. MEAD AND WOODWARD:—Will you oblige a subscriber by giving your opinion as to the best time to prune Pear trees which were transplanted last October, and at the time not pruned?

Brooklyn, Feb. 1862. C. P. S.

[The proper time to prune your transplanted Pear trees will be in the month of March or not later than April. Do not neglect it till the buds have started. Cut always to a good sound bud, and be careful not to bruise it.—ED.]

HORTICULTURAL SOCIETIES.—Upon re-reading my article in January No., I feel I must plead guilty to "Anthophilus's" charge of inconsistency. See how it was—it is an illustration of the difficulty of serving two masters.

I did labor under the delusion that the Gardeners and Horticultural Societies were one; and figuring to please both, got me into the scrape.

If the gardeners are the impracticable set Anthophilus makes them out to be, (and I am really beginning to believe he is about right,) why then, I say, let them go to pot, and the societies on their own hook.

February 17th, 1862. Yours, BROOKLYN.

[No, do not let them go there, (only the "cabbage heads,") but let us strive for a more perfect "union."—ED.]

ANOTHER OF ROGERS'S HYBRID GRAPES—No. 1.—EDITORS OF THE HORTICULTURIST:—In the present number of the HORTICULTURIST, you notice No. 15, of Rogers's Hybrid Grapes.

This season I fruited No. 1, and am highly pleased with it, being the first season it bore; the clusters, of course, were not so large as we may expect them. Bunch medium, berry a trifle above medium, oval, much like Isabellas in color, texture and flavor resembling Diana; vine free from mildew, and quite hardy. Some twenty varieties of these hybrids on my grounds (and of which I hope to be able to send you fruit of next fall) seem to be perfectly hardy and free from dis-

ease. With me Diana has behaved herself by no means well. Concord and Delaware are *some*, however.

Is it a common thing for black grapes to produce white ones from seed? Out of five Concord seedlings, old enough to bear, two bore fruit last fall, both white, one of them a grape of merit, if I am a judge, at least so far as flavor is concerned. But it must combine all the good qualities if it ever leaves my grounds as a grape for the public.

Lebanon, January 9th, 1862. Yours truly, S. M.

[We are obliged to you for this additional knowledge of Rogers's Hybrids. We are glad to find that you agree with us in regard to the Delaware and Concord. The value of the Delaware can not at present be overrated. It is quite common, as we have remarked on former occasions, for black grapes to produce white or green seedlings. Seedlings from the Isabella are often green. We should be glad to see your seedling, but like your determination not to let it go out till it is found to "combine all the good qualities." That is the only kind of seedling that should now come before the public.—Ed.]

HORTICULTURAL SOCIETIES, ETC.

Brooklyn Horticultural Society.—The regular Conversational Meeting was held January 28th. The President being ill, Mr. Barnes took the chair.

Mrs. Humphries exhibited a basket of cut flowers. Mr. Brophy exhibited cut flowers. Mr. Messenberg exhibited a basket of cut flowers. A lady asked where she could purchase a plant of Halimodendron, or *Salt Tree*, but the members present could not inform her. Another asked, "Can aquatic and marsh plants be grown successfully in rooms? Must they be in separate pots, or can they be grown together in an aquarium? Must they be planted in soil, or will placing the roots in water be sufficient?"

Mr. Bridgeman replied that they could be grown in an aquarium or a tank; fish would be an advantage. Almost any kind would furnish water plants of some description. They need not be in separate pots; put some muck or soil on the bottom of the tank, in which set the plants, and keep them down with shells. Many kinds of aquatic plants will grow with their roots free from soil, drawing their nourishment from the water alone. The natural condition of marsh plants is to root in soil. Had found it necessary to keep the water in motion. A few can be easily grown, but to flower many is quite an undertaking.

A member handed in the following: "Information is desired regarding the *Tree Dahlia*, described in Loudon's Arboretum (vol. v., p. 1073) as being arborescent, and growing to the height of *forty feet*. A native of Mexico. It was introduced into the Liverpool Botanic Gardens in 1835; also the Edinburgh Botanic Gardens, and the Horticultural Gardens at Manchester."

Mr. Bridgeman said he was unable to answer by that name. Mr. Brophy moved that it be referred to Mr. Bridgeman to investigate. Carried.

The next question was whether the Mistleto (so common in Europe) is found any where in this country.

Mr. Barnard had seen it growing on the Ohio.

Mr. Fuller said it was not the same as that which grows in Europe.

Mr. Bridgeman had sent many things to England, Scotland, and Ireland, and they were surprised at them.

A lady wanted to know why Fuchsias do not ripen their seeds in this country, and if there is any plan to force them to do so.

Mr. Bridgeman said there was no difficulty in ripening the seed so far as was necessary to make them grow. A Fuchsia, as long as it is left growing, will circulate its juices like an evergreen. Had ripened several varieties, mostly of the dark kinds, but did not remember their names. Did not know whether it would seed out of doors.

The same lady sent up the question, "Would any advantage be gained to plants in pots if the earth should be lightly covered with powdered charcoal? What would be the effect of a mixture of ox blood and cream of tartar upon the roots of plants?"

Mr. Bridgeman said, that as a fertilizer it would be too strong for a plant as tender as the Fuchsia.

The next question was, "Is there any truth in the statement that an onion or garlic planted at the root of a rose bush increases its odor?"

Mr. Fuller wanted the question referred to mythology.

Mr. Bridgeman said that Fuchsias do better shaded. He grew them last year in the house till the Gladiolus began to flower, then moved them out-side, and they flowered till frost. With proper shade, shelter, and soil, Fuchsias could be grown much larger than is usually done. Began to propagate the first lot this month, but the best plants will be those started next month.

It was asked, what is the best soil?

Mr. Bridgeman replied that he used principally fresh virgin loam, decomposed manure, and wood ashes; watered with a weak solution of guano. The best soil comes from old pastures.

In reference to the onion or garlic, Mr. Brophy advised to try what the effect would be. Nature knows how to take and reject what is unfit. Had occasion to visit the garden of a florist in New York who had a healthy show of roses and free from insects, by planting tobacco leaves at the foot of the roses, and it may be possible that something may be accomplished by planting at the roots.

Mr. Bridgeman doubted whether plants would be affected by any application of this kind. Had tried aloes by syringing, and if this would not do, would not think much of the other. Worms in New York eat the Maple and Horse Chestnut clean of leaves, and are now eating the Ailantus. Had used aloes, tobacco, and whale oil soap with only partial success; had tried them on the leaves and in the soil.

Mr. Brophy said that a writer had stated that the Hydrangea would change color by the introduction of minerals in the soil. As to the ravages of insects, it is a law of nature that little insects must live as well as big ones. There are more species of insects living and afloat than of all other species together.

Mr. Bridgeman said that the soil would frequently vary the color and nature of the plant. Some soils without the addition of iron would make the Hydrangea blue. He had noticed the same in the Gladiolus.

The subject of the evening, the Cultivation of Plants in Rooms, was then taken up. [Mr. Bridgeman occupied the remainder of the evening with an essay on the subject, which we shall give as a separate article. We should have done so in the present number if Mr. Bridgeman had not unfortunately lost the manuscript.]

Mr. Brophy called attention to an insect on a leaf, something like a mud turtle in its outward texture.

Mr. Bridgeman said that nothing was more pleasing and gratifying than to arrange flowers and combine colors: green leaves, variegated leaves, and fern leaves are a great addition to a bouquet. He liked the Philadelphia style of bouquets better than those of New York and Brooklyn, but they did not suit our people. Had bought a bouquet at the hotel which was beautiful: a base was formed, and every flower set up so as to show all of it. The florist is not so much to blame as his customers; if he changes his style he must change his customers. They should learn to state their tastes: there are as many ways of making bouquets as there are tastes. Adjourned.

The Society met again February 11th, the President in the chair.

On the table were Ferneries and cut flowers from Mr. Bridgeman, seedling Carnations from Dailledouze and Zeller, a Wardian case, basket of flowers, and Cinerarias from Mrs. Humphries, metallic flower pots, forest leaves, and works on rural subjects from Mr. Miller, and a basket of flowers from Mr. Messenberg.

The following questions were asked: 1. "When is the best time to remove wild plants from the woods, spring, summer, or autumn?"

Mr. Bridgeman replied, in spring or autumn; with care, in summer; spring is best, as they have the whole summer to get established. If moved in the fall, the roots are likely to be thrown out by frost.

2. "Can the Pomegranate be grown here as the Fig is, by being covered during the winter?"

Mr. Bridgeman thought it could not.

3. "Is this the proper time to prune choice fruit trees and shrubs, or wait till the buds have started?"

Mr. Bridgeman said fruit trees might be pruned this month; it was not well to leave them till the buds started.

4. "Is it too soon to wash the body of the trees with a solution to kill the insects in an egg state?"

Mr. Bridgeman preferred to leave it till later.

Mr. Quin preferred to do it in April to kill the aphis.

5. "Can the Asimina or North American Papaw be obtained from any of the gardeners?"

Mr. Bridgeman was not aware of its being grown.

6. "Is the Soap Plant (which I believe is a native of California) to be obtained here? and if so, please indicate directions for its cultivation."

Mr. Bridgeman remarked, that this question exposed some of the difficulties in the use of common names. He did not know what was meant by Soap Plant.

Mr. Fuller said the Soap Plant is grown here; the California kind, called saponaria, is hardy with Mr. Prince.

[The plant referred to in the question is undoubtedly the Phalangium pomaridianum, used for washing in California. It can be obtained here.—Ed.]

7. "Can the double violet be grown in the open ground?"

Mr. Bridgeman said it would not stand our winters; they should be grown in cold frames. They bloom in England.

8. "Is the Scotch Heather to be found growing wild in this country, and can it be obtained of any of the gardeners?"

An article was read from the Horticulturist, stating that it had been found growing wild in Massachusetts.

Mr. Fuller did not doubt its being found, but did not think this proved that it was indigenous.

9. (By a lady.) "Can the garden Ranunculus be successfully grown in this country? state the mode of culture. Please to name the most successful grower."

Mr. Bridgeman said the Ranunculus was uncertain here; had had them bloom splendidly sometimes; at others, they were killed in the winter. They may be grown in any garden soil; they improve every year. Few will take the trouble to keep them over on account of the uncertainty of doing well.

Mr. Degrauw had set them out several years, but failed; others had succeeded.

Mr. Fuller thought it must be in the soil. In Wisconsin he had no trouble in making them bloom.

Mr. Bridgeman said, the soil in which they are grown in Holland is a fibrous, sandy loam, black as ink.

10. A lady wished to know if the Cinnamon, Coffee, and Camphor trees can be grown in a green-house with the usual culture of other plants.

Mr. Bridgeman said they could. A Coffee tree was now in fruit in the green-house of R. L. Stuart. Cinnamon and Camphor could be grown; he had seen a Coffee tree in fruit within a few days.

More questions were sent in by a lady. 11. "Is any thing known here of a new Zinnia called Zinnia aurea, which is said to be a native of Mexico?"

Mr. Bridgeman said they had it in England at the gardens of the Royal Horticultural Society. He had not seen it.

12. "Where can I obtain the new Roses which I saw noticed in the Eagle a few months since? viz.: Empereur de Maroc, Victor Verdier, Duc de Magenta, and Comtesse de Chabrilliant."

Mr. Zeller said the varieties were quite new, and thought they could not be obtained in quantity. He had them in course of propagation.

13. "Are there any variegated *hardy* evergreens?"

Mr. Bridgeman said there were a few, and many more that required protection; the variegated Holly is hardy.

14. "Which is the best variety of Rose to be grown as a weeper, and which as a pyramid?"

There was no answer to this question.

15. "The Cephalotus follicularis is described as growing in European gardens: can it be obtained here, and will it grow out of doors without protection?"

No one answered.

16. "Will you please explain the cause of my Brugmansia buds falling off? The plant is young, about three feet high, leaves fresh and healthy looking; 18 to 20 buds will appear, grow one or two inches, and fall off."

Mr. Bridgeman said, in regard to Brugmansia, it depends on the treatmens they receive. We plant in the open ground. There are many causes, such as the change from open atmosphere to house, etc.

17. "Also, what would cause Camellia buds to show dark brown spots, which spread over the buds, and they fall off?"

Mr. Bridgeman said that Camellias will set more buds than they can mature; it is better to thin out. If taken from the open air in autumn, into strong heat, or without ventilation, they will drop their buds. It is a common thing to have the buds drop off; it is almost impossible to prevent it where a furnace or gas is used. If water is evaporated, it will to some extent counteract the effects of a furnace. Mr. Bridgeman then made some remarks in regard to the subjects exhibited, and explained the manner of treating the ferneries exhibited by himself.

The subject of the evening, Waltonian Cases, was then called up, and inquiries made for Mr. Mead, who had suggested the subject.

[We will simply say here that we were not present because of the death of a dear and beloved mother.—Ed.]

A desultory conversation ensued. Mr. Fuller thought a case for 1,000 cuttings, that would root them in from four to six weeks, could be made for $5, and furnished with bottom heat at 75 cents. He would try to have one shown here.

Mr. Cavanach thought they attained great perfection in the Wardian case in Belgium; considered them better adapted to Lycopodiums and Caladiums; did not think that common house plants would do, as they grow too fast.

Mr. Bridgeman did not see any objection to growing any plants in the Wardian cases, unless it were extremes; one plant may require much moisture and another less. Unless the case be large, there may not be material enough to perfect a large plant. The plants should be of the same class, or require the same conditions, to do well together under a case. It is not necessary to make them air tight.

The subject of "Spring Pruning" was selected for the next meeting, and the Society adjourned.

FRUIT-GROWERS' SOCIETY OF WESTERN NEW YORK.

(*Continued from page* 104.)

Mr. Hooker said the Pomme Royal is of poor appearance, greenish white, often specked. Twenty Ounce is one of the best market apples, excellent for cooking, hangs well on the tree, and is a good bearer.

Mr. Moody believed the Duchesse of Oldenburgh to be one of the best autumn apples, and a very early bearer, often bearing in the nursery; one of the tenderest table apples. Fall Pippin, after the Gravenstein, is the next best cooking apple.

Mr. Fish said it is generally admitted that the Fall Pippin is of good quality, but he could never get many of them.

Mr. Holmes, of Syracuse, had not heard the Hawley mentioned, and would like to get the opinion of members as to its quality.

Dr. Sylvester said the Hawley is one of the best fall apples, but is not considered very productive.

Mr. Beadle had the Hawley in cultivation some years, but of late it is not only water-cored, but water-soaked, and about worthless. It stands in a rather low place in the orchard, and this may be the cause of the trouble.

Mr. Hoag found it the same at Lockport.

Mr. Herrington had the same difficulty with it in Macedon on high ground.

Mr. Hooker could not get along without the Porter for family use.

Mr. Ellwanger said, as it seems to be understood that the list is to be increased to six autumn varieties, he wished to add the St. Lawrence. He also spoke well of the Porter.

Mr. Corey, of Penfield, considered Maiden's Blush a very fine apple.

Mr. ANTHONY said Maiden's Blush is always fair, productive, and excellent.

Mr. BARRY said it is remarkable to notice the changes in the character of apples. Only twelve years ago the Hawley was extremely popular, and it was an excellent apple. Now it is subject to the defect noticed by several gentlemen, and is about discarded.

Mr. HOOKER found the St. Lawrence a very perishable, unreliable fruit. The crop generally is poor and wormy.

Mr. BEADLE thought the St. Lawrence had got too far south. In Canada, the further north it is grown, the higher-colored, the finer, and the more perfect the fruit. It is always large, fine, and the tree productive.

Mr. LAY, of Greece, found it to ripen unevenly.

Mr. SMITH said this is the case in Syracuse, but considers that this variableness in ripening makes it the more valuable for family use.

BEST TWELVE WINTER APPLES.

IV.—*The best* 12 *winter, to embrace* 2 *for stock,* 2 *for baking,* 2 *for cooking, and* 6 *for the table.*

Mr. ELLWANGER thought the Fameuse the best early winter apple for the table.

Mr. HOOKER recommended for baking the Tolman Sweet and Ladies' Sweet—a very valuable fall sweet apple.

Mr. BARRY said, for market, he was prepared to recommend the Rhode Island Greening and Baldwin.

Mr. FISH recommended, for late keepers, the Roxbury Russet and Golden Russet.

Mr. BEADLE recommended the Pomme Grise as a fine late keeper, to June, and asked information respecting the Pomme d'Or, a good apple, somewhat resembling the Pomme Grise.

Mr. FISH said the Pomme d'Or is a small excellent russet apple. It sold last year at $10 per barrel in Canada.

H. N. LANGWORTHY said he first saw this apple on the ridge-road, near this city, in the orchard of Mr. SHERMAN. Its fine flavor and aroma is delightful. It is the prince of russets. It is more oblong than the Pomme Grise—sometimes quite oblong. The tree is upright in its growth, and a good bearer. For a long time could not ascertain its name, but by searching the French pomological works became satisfied that it was the Pomme d'Or of the French, and it has been called by that name.

Mr. BEADLE said Norton's Melon is exceedingly valuable in Canada.

Mr. SMITH called attention to Peck's Pleasant, as it had not been mentioned. It is a very valuable early winter apple, and a pretty good bearer. Had none this winter. All the winter apples they have in Syracuse this season are the Golden Russet and Northern Spy. These two are the hardiest trees we have.

Mr. BARRY said the Golden Russet, as understood here, is the one with small specks on the bark. The American Golden Russet, so much grown in New Jersey and southward, will not do here. Our Golden Russet is not described in the books.

Mr. SMITH spoke of the Wagener as an early winter apple, of which the tree bears very young; is a good bearer, healthy, and most desirable.

Mr. WRIGHT inquired of the value of Cooper's Market.

Mr. HOOKER said it is grown by some of his neighbors, and is a good bearer and keeps until April. It is a showy fruit, but not of first quality. The Yellow Bellflower is good, but sometimes specked.

Mr. SHARP, of Lockport, inquired why some one did not speak of the Swaar.

Mr. BEADLE found it tender in Canada. It winter-kills badly.

Mr. SMITH said it has the same defect as the Fall Pippin—never bears a crop.

Mr. LAY said the Swaar had borne well with him.

Mr. SYLVESTER recommended Newtown Pippin, wherever it can be grown without specks.

Mr. ELLWANGER said the Jonathan is an excellent dessert apple, and high colored. The Canada Reinette is also good.

Mr. COVEY considered the Bailey Sweet equal to any sweet apple we have, through January and February.

Mr. HOAG said the Bailey Sweet is a good apple, but it will not keep.

The PRESIDENT said the Bailey Sweet, on the warm, sandy land about Moscow, is a late fall apple, but on heavy land, and in colder situations, it is a winter fruit.

Mr. BEADLE noticed the Yellow Bellflower was recommended by some one. With him it is a shy bearer, and has a very large core. He thought little of the variety.

W. P. Townsend, of Lockport, said the Yellow Bellflower needs severe pruning, and if the tree is in good condition, the fruit is good.

Several gentlemen stated that the Bellflower is tender about handling.

Mr. Moody thought this a little too far north for the Yellow Bellflower, but with a little care it will succeed well. For early winter the Wagener is one of the best. He thought well of Peck's Pleasant.

Mr. Barry said the Yellow Bellflower was really a Southern apple. In the North it is doubtless degenerating, though it had never done well here, except in favored localities, but in the South it is as fine as ever.

Mr. Glen recommended the Belmont as an early winter apple, both for the table and cooking.

Mr. Barry believed it to be a seedling of the Yellow Bellflower, and a good apple, very popular in Northern Ohio.

Mr. Cummings recommended the Northern Spy as a late winter apple, exceedingly valuable for a Northern climate. Bears well when it commences, but is not an early bearer.

Mr. Hooker inquired about the Spitzenburg—an old favorite.

Mr. Moody said it is good in Niagara county.

Mr. Barry said it is one of the most popular apples in our State, but requires high culture, so that the trees may be kept growing vigorously. It is useless to try to grow it in grass.

Mr. Townsend said that is the reason the Spitzenburg is losing its popularity. Most of the bearing trees are old and have been neglected.

Dr. Sylvester could recollect when the Spitzenburg was the most popular apple grown. Most people like its high, spicy flavor, and it is not excelled for cooking. But the trees must be fed to get good fruit. Did not call it a first-rate bearer, but when trees are well cultivated it will give a fair crop.

Mr. Moody said the Spitzenburg needs a deep, dry soil. Cyrus Beach, of the town of Cambria, in Niagara county, had grown very large crops—sometimes twenty barrels from a tree.

Mr. Smith said it does poorly at Syracuse. They think it has had its day and must be abandoned.

L. B. Langworthy remarked that the Red Canada is one of the best apples in the world.

THIRD SESSION.

Ex-President Moody, of Lockport, exhibited a number of very fine pear stocks of his own growing, which attracted much attention on account of their fine growth, and at the request of Mr. Barry, Mr. M. made some remarks on his mode of culture. He had grown 400,000 the past season as fine as the specimens exhibited, one half being of extra size, and the others might well be called first-class. Gave a large quantity of ashes, about 150 bushels to the acre, applied at three times during the season.

BEST FORM FOR AN APPLE TREE.

V.—*What is the best form of an Apple tree, and which is the time for pruning?*

Mr. Sharp thought he might not agree with others in his views of pruning. Would head all fruit trees low. Branches pruned near the ground are more vigorous and stocky than those formed further up the main stem. They show a disposition to ascend instead of running out horizontally, make a good spreading top, and can bear more weight without injury. Trees trained in this way are also less exposed to the winds. This is particularly the case with pears.

J. J. Thomas was opposed to pruning the heads of trees high. In many orchards trees might be seen some three stories in height, from successive grafting.

Mr. Fish agreed with Mr. Sharp. Branches pruned near the root are stronger than those formed six or seven feet from the ground.

Mr. Hooker considered the question a difficult one. Trees grow naturally of all forms. The Northern Spy has an upright growth, Greening crooked and drooping, while the Baldwin makes a round-headed tree. Cut out the young wood from a Tompkins County King, as is desirable for a Northern Spy, and soon there would be no bearing wood left. This variety requires shortening in, while the Northern Spy requires thinning out. It is well to study the habits of trees, for, do the best we can, they will have their peculiar shape.

Mr. Barry said there is a difference of opinion about the height heads should be formed in orchard trees. He believed in having the heads low. Many advantages result from this course: the sap has not to travel so far; branches near roots are stronger, and not subject to so many accidents, are less exposed to weather, and protect the trunk from effects of sun and

freezing. All our orchard trees are found leaning to the east, the effect of our strong west winds. The higher the head is formed from the ground, of course, the more they are exposed. Low-headed trees are more easily pruned, and the fruit is gathered with much less difficulty and danger. The advantages are numerous and obvious to every grower of fruits. Some think the head should be formed so high that a horse with plow could work under the branches. This is not necessary. The principal feeding roots are at the extremities, and as far out as the ends of the limbs or further. Manure and culture are not needed under branches. Plowing injures the roots by tearing and breaking them. The best fruits are produced from trees where the ground under the branches is always shaded. A slight forking under the trees is all that is required.

Mr. MOODY said they had to come to some system of culture that would suit farmers. Farmers would not use the fork. Had found no evil from plowing. Commence plowing when the trees are young, and the roots will not come near the surface. Would form heads four or five feet from the ground. Some tender trees have the bark injured by the sun in winter. This is prevented by growing branches low.

Mr. BEADLE said the climate in which trees are grown, may have a good deal to do in determining the form of the tree. Mr. Moody spoke of the sun burning the trunks of trees. Had seen the same frequently in Canada, the bark injured for seven or eight feet up the trunk. Thought it the effect of the sun followed by hard frosts. By keeping the head low, the trunk is protected. Never saw any ill effects from heading trees low. In Canada they have severe southwest winds. Every tree leans. The main crop is blown off high trees. Mr. B. would not use a plow under or near the trees in an orchard. The roots like to come near the surface for light, and air, and dew.

Mr. HOOKER said the advocates of low heads seemed determined to drive those in favor of higher heads into a false position. Although he did not believe in forming heads as low as some, he was equally opposed to having heads as high as some have described, and as is often seen. But the heads should be formed so high as to admit of horse work under the trees. Farmers can not use forks and spades in cultivating their orchards—they must depend upon horses.

J. J. THOMAS had made a good deal of observation in the length of roots. The radius of the roots is equal to the height of the tree. If the tree is twenty feet in height, the roots will extend twenty feet from the trunk in every direction. Mr. T. inquired if any one had ever known injury to result from plowing an orchard. The tearing of the roots a little he thought not so injurious as neglecting to stir the soil. Apple roots, many of them, go down low, but peach roots lie near the surface.

Mr. E. MOODY said orchards should never be seeded down. In order to allow the dews to penetrate the ground, it must be kept mellow, and the natural attraction and affinity from below will draw the moisture. A good "summer fallow" never becomes dry. An orchard should be so planted as to be cultivated almost entirely with plow and cultivator, using but one horse, with so short a whiffletree as to drive within one foot of the tree. I say horse, because in large orchards farmers WILL use teams, and will not use forks or spades.

Dr. SYLVESTER said it is necessary to shade the trunks of trees, and it is also necessary to to keep the tree growing to obtain good fruit. To effect this, it is necessary to keep the ground well cultivated, and it is hard to do this if the head is formed very low.

Mr. SHARP is determined to head his trees low, and has a pair of small mules for working under them; and when the trees are too low for these, will try a pair of asses.

Last part of Ques. 5.—Best time for pruning?

SHARP.—Whenever you see a limb which ought to be removed, cut it off; but, as a rule, general pruning after the flow of sap has commenced is injurious; has learned this from experience.

B. FISH objected to late pruning, whether in orchard or nursery trees, causing deformity to the tree.

ELLWANGER.—If you wait until the 1st of June before pruning, you get no growth, and that is the case with all late pruning. The best time for pruning is February, if you want a healthy growth of the tree. The most of the pruning, formation, and shaping of the tree should be done while the tree is young.

LANGWORTHY.—Experience has taught that late pruning stops the growth of the trees, and is the most injurious thing in the world. Old trees, if pruned even as late as April, will bleed, will rot and turn black; while pruned in winter the wood will season perfectly, the wound heal over hard and bright, and remain so.

H. E. HOOKER agreed with Mr. Langworthy, that late pruning is a most severe check upon the fruit tree, and in some instances is perfectly ruinous, causing stagnation in the system

of the tree. To cut off large branches in May injures the circulation in large trees; while if cut in January or February the wound seasons and grows over perfectly.

Mr. Holmes argued that the pruning had best be done either before the circulation of the sap commenced, or after the leaves were formed.

At the close of the discussion on this subject members were requested to prepare and leave with the Secretary a list of the best six summer, the best six autumn, and the best twelve winter varieties. The following is the aggregate vote:

Best Six Summer.—Two Sweet.

Red Astrachan,	12	Summer Permain,	2
Primate,	10	Early Joe,	3
Early Harvest,	8	Lowell,	1
Early Strawberry,	8	Benoni,	3
Keswick Codlin,	2	Sweet Bough,	12
Summer Rose,	5	Golden Sweet,	8

Best Six Autumn.—Two Sweet.

Colvert,	2	Munson Sweet,	7
Twenty Ounce,	10	Fall Jenetting,	1
Gravenstein,	9	Twenty Ounce Pippin,	1
Duchess of Oldensburgh,	7	Pumpkin Sweet,	1
Porter,	7	Maiden's Blush,	1
Jeffries,	3	Fall Pippin,	2
Pomme Royal,	3	Sylvester,	1
Beauty of Kent,	2		

Best Twelve Winter.—Two Sweet.

Rhode Island Greening,	13	Smith's Cider,	1
Tompkins Co. King,	12	Norton's Melon,	1
Northern Spy,	12	Canada Reinette,	2
Baldwin,	12	Blue Permain,	1
Spitzenburgh,	8	Rwule's Jannet,	2
Golden Russet,	8	Tolman Sweet,	14
Roxbury Russet,	7	Seek-no-Further,	2
Peck's Pleasant,	7	Green Sweet,	3
Yellow Bellflower,	5	Ladies' Sweet,	5
Pomme Grise,	4	Cooper's Market,	2
Canada Red,	5	Cranberry Pippin,	1
Swaar,	6	Ribston Pippin,	1
Red Cheek Pippin,	3	Bailey Sweet,	3
Wagener,	6	Jersey Sweet,	3
Belmont,	2	Pound Sweet,	1
Fameuse,	7	Hill Sweet,	1
Rambo,	5	Pomme d'Or,	2
Vandervere,	1	Jonathan,	1
Minister,	1	Mother,	2

Mr. Barry announced that among the distinguished fruit growers present, he was happy to observe the Rev. J. Knox, the celebrated Fruit Farmer of Pittsburgh, who has two hundred acres in fruit, and fifty acres in strawberries. The President requested Mr. K. to favor the meeting with an address.

Mr. Knox stated that he has had more experience with strawberries than any other fruit, and without pretending to make an address, he would give the members the benefit of his experience in strawberry culture, treating of soil, preparation of soil, cultivation, and varieties. He considered a rather light clay soil preferable to a sandy soil, for strawberries. The first work in its preparation is thorough drainage, next breaking up or pulverizing, from twenty to twenty-four inches in depth. This is effected by the plow alone. First use an ordinary plow, with two horses, followed by Mapes' lifter, a kind of sub-soil plow, with two yokes of oxen. Give the ground several plowings in different directions, until it is well broken up and pulverized. Could produce two or three very good crops on land plowed in the ordinary way, eight or ten inches, but on that two feet deep could obtain ten or twelve crops in succession. Straw-

berries do not require much manure. Any good wheat or corn land is good enough for strawberries. Plants in rows thirty inches apart, and the plants ten inches apart in the rows, making twenty thousand plants to the acre. When he commenced strawberry culture, he plowed between the rows, but latterly has discarded all implements in his strawberry plantations, except the hoe. Weeds are taken out by hand. The less the soil is disturbed after planting the better, as the whole ground is covered with a net-work of small, fibrous roots. Never allows the vines to bear the first year planted, but picks off all the fruit-stems and runners, and removes the runners every year that the plant is fruited. Prefers setting out early in the spring. Protects the plants in the winter by wheat or rye straw, thrashed with the flail. Oat straw is not heavy enough, and blows off. Plants bear much better for this protection. The straw is removed in the spring, and placed around the plants as a mulch, and helps a little towards furnishing manure. One half the straw is wasted each year, and needs to be supplied every autumn. Two tuns to the acre is about the right quantity of straw to commence with, but after that, one tun of new straw each season will answer.

Varieties that succeed in some soils and situations, fail in others. The Hovey is good in Boston, and he had seen it good in Cleveland, but with him it never succeeded. Some varieties seem to run out, after culture a number of years. Pistillate varieties do better when impregnated with some staminate sorts, than with others. On this subject he is trying experiments. The strawberry season ought to be lengthened. It is usually about three weeks, but with proper selection of sorts, can be extened to five weeks. The sorts he liked best were the following:

Early—Baltimore Scarlet, Jenny Lind, Burr's New Pine.

Late—Trollope's Victoria, Kitley's Goliath, Nimrod, Buist's Prize.

Medium—Brighton Pine, Boston Pine, McAvoy's Superior, Scott's Seedling, Moyamensing, Downer's Prolific, Fillmore, Golden Seeded, British Queen, Vicomtesse Hericart de Thury, Wilson's Albany, Triomphe de Gand.

For a general crop, Wilson's Albany and Triomphe de Gand are the most profitable. The latter is the strawberry of all strawberries, and possesses all the excellences that can be desired—productive, beautiful, large, of fine quality, berries shipping well, and the plants are hardy. It is not as productive as the Wilson, but an acre will bring more money. Sent them to Cleveland, Chicago, Philadelphia, and New York. Received orders from New York for more than his whole crop. If confined to one strawberry, he would plant the Triomphe de Gand. Although not quite as productive as the Wilson, he could say with safety, that it produces more than 300 bushels to the acre. For canning, the Wilson is preferred. The only manure used is well rotted stable manure. The same plant, if the runners are kept off, will bear ten years. A good many crowns will start and cluster around the original plant, each bearing a fruit stem, and all producing a very large amount of fruit. He observed several fruit growers from Canada present, and expressed the wish that all the troubles of nations could be left with the lovers of fruits and flowers for adjustment; then our spears would soon be turned into pruning-hooks, and our swords into plowshares.

Mr. VICK expressed pleasure at the remarks of Mr. KNOX. They show that the very best culture is successful on a large scale. We are too apt to think that good culture must be confined to amateurs or garden culture exclusively, and is unsuited to the orchard and market garden. This is an error. That system which is most profitable in the garden, will be generally found so in the orchard.

GRAPES.

What are the best six varieties for family use, and which are the best two for vineyard purposes?

Mr. KNOX of Pittsburg has been testing a number of varieties, of which three have given entire satisfaction, viz.: *Concord*, *Delaware*, and *Hartford Prolific*. The Concord and Hartford Prolific are entirely free from disease in the vine and in the fruit also, while they ripen their fruit early and well. The Delaware is a very superior grape, and ripens in Pittsburg by the 5th of September, and is a very superior wine grape without the addition of sugar to its juice. Concord generally ripens its fruit well, and is probably destined to be the great grape of this country. Hartford Prolific ripens its fruit by the 1st of September; but although the grapes readily sell for twenty-five cents per pound, he would not plant it very largely, as the fruit has a tendency, under some circumstances, to drop from the bunch. Had found that the Catawba produced much more abundantly if laid down and whole vine covered with earth each winter. The Concord vine stands more hard usage than any grape that I know of, but repays well for good cultivation. The vine bears early and abundant crops of the most beautiful grapes that I know of. Adopts the renewal system, planting a thousand vines to the acre, and training

upon trellis eight feet high. Obtains twenty-five pounds of grapes from each vine after the third year.

Dr. H. H. FARLEY, of Union Springs, finds Diana to be one of our most valuable hardy grapes, and it is his decided favorite. Delaware does not suffer at all from mildew, and we think a great deal of it. Concord will prove our most valuable native grape, the vine being as hardy as an oak, and not killed by cold nor variable weather. Isabella has proved valuable for vineyard purposes, but of late years has been winter-injured. Catawba can not be ripened to perfection in Western New York. The renewal system of pruning and trimming is unquestionably the correct one, as all vines bear their best fruit from young wood.

Mr. LANGWORTHY spoke of Delaware, Concord, Diana, Hartford Prolific, Union Village, and Rebecca, as the best six for family use, and Clinton and Delaware as the best two for vineyard purposes in this climate.

In answer to several questions, Dr. FARLEY stated his vineyard to be high and dry land, originally poor and clayey, with the subsoil *all* clay. He plowed it from eighteen to twenty inches deep, by using three teams; then underdrained it all, and the tile discharge water now. Then applied muck in its crude state pretty freely, plowing it in; and planted the vines upon the land thus prepared.

Experiments.—Trenched one piece of land three feet deep, and the vines planted upon it made wood beautifully, but bore very little fruit. Tried planting the vines twelve feet apart each way, and found that they were too far apart. Tried eight feet apart, and found that they were too near. Tried eight by ten feet apart, and likes it best. Ringing the vines causes the fruit to ripen from two to three weeks earlier, and the grapes to be much larger than natural; but this earliness and size are gained at the expense of the flavor of the fruit.

Mr. HOLMES, of Syracuse, had found the Clinton better than any other sort with him for wine purposes. The chief fertilizer which he uses is hard wood ashes, (and some soap suds,) which causes the fruit to ripen from two to three weeks earlier, and in much greater perfection than other grapes near by, and not treated in the same way. Considered perfect underdraining of very great advantage to vines. As to winter protection, would lay upon surface of ground and cover with loose earth.

Mr. HAYWOOD had found that a barrel of ashes to each vine, would, under favorable circumstances, cause even the Catawba to ripen its fruit; while Mr. Moody had never yet seen a ripe Catawba in Western New York. Mr. Moody would recommend Delaware, and Concord, and Diana for family use.

Dr. SYLVESTER would advise for family use the Delaware, Diana, Concord, and Union Village, which is a fine large grape, and ripens at same time as Rebecca; Isabella, which usually ripens by the 25th of September; Hartford Prolific, and Rebecca. For vineyard, the Oporto, which ripens by the 15th of September, and the Clinton. Has found the Diana to ripen as early as the Delaware. Clinton are not in perfection until the frost touches them a little, and then they are the richest in wine-making qualities of any except the Cincinnati-ripened Catawba. Clinton keeps until February in perfection, and is the best of any grape we know of for keeping. Oporto produces three gallons of pure juice to the bushel of fruit, and from the residue we make a second quality wine by adding sugar and water. Oporto is perfectly hardy, and needs no laying down; but for winter protection Dr. S. buries all his sorts of vines a little if possible.

GEO. ELLWANGER referred to adding sugar and water to grapes, stating that the mixture thus produced was a cordial and not a wine. Wine is the juice of the grape, and nothing else. Clinton is the grape for wine in this latitude, and Delaware, Diana, Concord, Hartford Prolific, Rebecca, and Isabella are our grapes for family use.

WM. BROWN SMITH spoke favorably of Northern Muscadine, which this year with him did not fall from the bunch at all; and named Hartford Prolific, Delaware, Diana, Northern Muscadine, Isabella, and Concord as the best six grapes for family use.

P. BARRY spoke of the Rebecca, when ripe, as being the highest flavored of all our native grapes; but the vine is rather delicate in its summer foliage, and requires a good situation with a warm soil and southern exposure.

C. L. HOAG from thirty sorts which he had fruited, could recommend Concord, Delaware, Diana, Hartford Prolific, Perkins, and To-Kalon for family use. As to the dropping of grapes from the bunches, where the Hartford Prolific vines were shaded, the berries dropped, and where not shaded did not drop.

F. W. LAY liked the Concord better the longer he kept it, and would recommend Concord, Delaware, Diana, Rebecca, Isabella, and Hartford prolific for family use.

Mr. KNOX thought the Concord possessed all the good qualities of the Isabella, and more too. (Other remarks by other members.)

Adjourned to meet at Rochester in June, 1862, at call of Council.

Vanda suavis. *(Fragrant Vanda.)*
for THE HORTICULTURIST.